Duncanville City Council Meeting Agenda

Videoconference via ZOOM
Duncanville City Hall
203 E. Wheatland Road
Duncanville, TX 75116
(972) 780-5017

Tuesday, April 20, 2021
6:00 P.M. - Work Session/Briefing
7:00 P.M. - Regular Session
or immediately following the 6:00 pm Work Session/Briefing

City of Duncanville City Council meetings are available to all persons regardless of disability. The City of Duncanville offers Hearing Assistance Receivers for use during City Council Regular Sessions. If you require special assistance, please contact the City Secretary at (972)780-5017 or write 203 E. Wheatland Road, 75116, or by calling through a T.D.D. (Telecommunication Device for the Deaf) to Relay Texas at 1-800-735-2989 at least 48 hours in advance of the meeting.

As authorized by Section 551.071 of the Texas Government Code, this meeting may be convened into closed Executive Session for the purposes of seeking confidential legal advice from the City Attorney on any item on the agenda at any time during the meeting.

The City of Duncanville reserves the right to reconvene, recess or align the Regular Session or called Executive Session or order of business at any time prior to adjournment.

SUPPLEMENTAL NOTICE OF MEETING BY VIDEO CONFERENCE

In accordance with an Order of the Office of the Governor issued on March 16, 2020, as extended by Office of the Governor on June 12, 2020, the City Council for the City of Duncanville, Texas will conduct a City Council Regular Meeting by video conference at 6:00 pm on Tuesday, April 20, 2021, in order to advance the public health goal of limiting face-to-face meetings (also called "social distancing") in an effort to slow the spread of the Coronavirus (COVID-19) pandemic.

This is an open meeting conducted by video conference. There will be no public access to a physical location.

To speak during Citizen Comments, you must register with the City Secretary before 4pm on Tuesday, April 20, 2021, email citysecretary@duncanville.com and title the email "Public Comment – April 20th". You will need to register with the link below and attend the meeting. During the Citizen Comments period of the agenda, the City Secretary will call your name and allow access to your camera and microphone for you to provide your comments. Feel free to email your comment to the City Secretary for the Mayor to read into the record for any unexpected technological issues that may arise.

Register in advance for this webinar:

https://us02web.zoom.us/webinar/register/WN_AKLUzrjRS2eKU2o6VLKrYQ

After registering, you will receive a confirmation email containing information about joining the webinar.

A recording of the video meeting will be made available to the public in accordance with the Open Meetings Act upon written request.

WORK SESSION / BRIEFING
Citizen comments will not be heard during the Work Session/Briefing but will be heard during the Regular Session.

1. DISCUSS AGENDA ITEMS

2. BRIEFINGS / PRESENTATIONS

A. Winter Storm URI after action review.

B. Discuss Independence Day Celebration scheduled for July 4, 2021. 5 - 6
Independence Day Celebration

C. Discussion regarding the addition of two (2) classified, civil service positions to the Police Department. 7 - 9
Additional Classified Police Officer Positions

D. Discussion on City Council Rules of Procedures regarding "Rule D - Agenda Rules" friendly amendments and motions.
Item requested by At-Large Councilmember Harvey.

E. Discussion on in person meetings.

EXECUTIVE SESSION
None.

REGULAR SESSION - CONVENE INTO THE COUNCIL CHAMBERS (7:00 P.M. or immediately following the 6:00 pm Work Session/Briefing)

CALL TO ORDER
INVOCATION
PLEDGES - PLEDGE OF ALLEGIANCE; TEXAS PLEDGE OF ALLEGIANCE

1. REPORTS

A. Mayor's Report.

B. Councilmembers' Reports

C. City Manager's Report.

2. PROCLAMATIONS AND PRESENTATIONS

A. Recognition of Keep Duncanville Beautiful Spring 2021 Curb Appeal Residential Properties. 10 - 13
Keep Duncanville Beautiful Spring 2021 Curb Appeal

B. Introduce Duncanville High School Youth in Government Program Officers.
Item requested by Mayor Pro Tem Cooks.

3. CITIZENS' INPUT

"Pursuant to Section 551.007 of the Texas Gov't Code, any member of the public has the opportunity to address the City Council concerning any matter of public business or any posted agenda item; however, the Act prohibits the City Council from deliberating any issues not on the public agenda and such non-agenda issues may be referred to City staff for research and any future action; all persons addressing are subject to council adopted rules and limitations permitted by law"

To speak during Citizen Comments, you must register with the City Secretary before 4pm on Tuesday, April 20, 2021, email citysecretary@duncanville.com and title the email "Public Comment – April 20th. You will need to register with the link below and attend the meeting. During the Citizen Comments period of the agenda, the City Secretary will call your name and allow access to your camera and microphone for you to provide your comments. Feel free to email your comment to the City Secretary for the Mayor to read into the record for any unexpected technological issues that may arise.

The City Secretary will still set a two-minute time limit on the comments as they are read.

4. CONSENT AGENDA

The following may be acted upon in one motion. A City Councilmember may request items be removed from the Consent Agenda for individual consideration.

A. Consider a Resolution approving the terms and conditions of a Master Agreement Governing Major Capital Improvement Project between the City of Duncanville and Dallas County for the Governance of the Major Capital Improvement Program and Authorizing the City Manager to Execute the Agreement. 14 - 64

MCIP Agreement Approval

B. Consider a Resolution approving the terms and conditions of Amendment #2 to the Municipal Maintenance Agreement with the State of Texas Department of Transportation (TXDOT) to allow the City to install and maintain the restriping and installation of delineators for bike and pedestrian traffic and the bridge at the intersection of US 67 and Danieldale within TXDOT right-of-way. 65 - 123

Amendment #2 to Municipal Maintenance Agreement

5. ITEMS FOR INDIVIDUAL CONSIDERATION

A. Consider an Ordinance amending Section 19-163 of the City Ordinance to add Frank Keasler Blvd to the list of no-through-truck zones. 124 - 128

Frank Keasler Blvd.

B. Take any necessary action as a result of the Executive Session.

6. STAFF AND BOARD REPORTS

A. Receive the Police Department Quarterly Report. 129 - 147

Quarterly Report

ADJOURNMENT

I, the undersigned authority, do hereby certify that this Notice of Meeting was posted in accordance with the regulations of the Texas Open Meetings Act on the bulletin board located at the entrance to the City of Duncanville City Hall, a place convenient and readily accessible to the general public, as well as to the City's website www.duncanville.com and said Notice was posted on the following date and time: **Thursday, April 15, 2021 at 5:00 P.M.** and remained posted for at least two hours after said meeting was convened.

Kristin Downs, City Secretary

PURSUANT TO SECTION 30.07, PENAL CODE (TRESPASS BY LICENSE HOLDER WITH AN OPENLY CARRIED HANDGUN), A PERSON LICENSED UNDER SUBCHAPTER H, CHAPTER 411, GOVERNMENT CODE (HANDGUN LICENSING LAW), MAY NOT ENTER THIS MEETING ROOM WITH A HANDGUN THAT IS CARRIED OPENLY.

DE CONFORMIDAD CON LA SECCIÓN 30.07 DEL CÓDIGO PENAL (PREVARICACIÓN POR LICENCIATARIO CON UNA ARMA DE MANO LLEVADA ABIERTAMENTE), UNA PERSONA CON LICENCIA BAJO EL SUBCAPÍTULO H, CAPÍTULO 411, CÓDIGO DE GOBIERNO (LEY DE LICENCIAS PARA PORTAR ARMAS), NO PUEDEN ENTRAR A LA SALA DE REUNIONES CON UNA ARMA DE MANO QUE SE PRACTICA ABIERTAMENTE.

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"PURSUANT TO SECTION 30.06, PENAL CODE (TRESPASS BY HOLDER OF LICENSE TO CARRY A CONCEALED HANDGUN), A PERSON LICENSED UNDER SUB-CHAPTER H, CHAPTER 411, GOVERNMENT CODE (CONCEALED HANDGUN LAW), MAY NOT ENTER THIS PROPERTY WITH A CONCEALED HANDGUN"

"DE ACUERDO CON LA SECCIÓN 30.06 DEL CÓDIGO PENAL (INGRESO SIN AUTORIZACIÓN DE UN PORTADOR DE UNA LICENCIA PARA LLEVAR UN ARMA CORTA OCULTA), UNA PERSONA CON LICENCIA SEGÚN EL SUBCAPÍTULO H, CAPÍTULO 411 DEL CÓDIGO DEL GOBIERNO (LEY PARA PORTAR ARMAS CORTAS OCULTAS), NO PUEDE INGRESAR A ESTA PROPIEDAD CON UN ARMA CORTA OCULTA"

STAFF REPORT

MEETING: City Council - 20 Apr 2021

TITLE:
Discuss Independence Day Celebration scheduled for July 4, 2021.

FY 2019 CITY COUNCIL ORGANIZATIONAL WORKPLAN:

- **5. Grow Duncanville (Culture, Sports, Technology)**
  - **Goal 2: Maximize city and community resources to improve quality of life in a sustainable manner.**

STAFF RESPONSIBLE:
Bart Stevenson, Director of Parks and Recreation

BACKGROUND/HISTORY:
The City's annual Independence Day Celebration is currently scheduled for Sunday, July 4, 2021. Due to COVID-19 concerns, the 2020 event was canceled as were most similar events in other communities. At this time, it appears that most cities are planning a return of their respective July 4th events, either in whole, or a scaled-back version. The planning process for such a large event requires months of preparation and as such, staff has completed a majority of the planning for a 2021 event; however all contractors and entertainment are aware that a final decision on the event has not been made by the Council. Staff is seeking input from the Council on hosting the event in 2021 and should we move forward with the event, should it be modified in any way.

Council direction requested:

1. Should the City of Duncanville host the annual Independence Day Celebration in 2021?
2. If the answer is yes, should the event be held on Saturday, July 3; Sunday, July 4, or a combination of both days? As noted, July 4 falls on a Sunday in 2021. A Sunday morning parade is problematic for several reasons including the route affects four churches that are in operation and their parking lots are also used by spectators of the parade. Should we move forward with the parade, staff recommends it be moved to the morning of Saturday, July 3. The other option is to cancel the parade portion of the event. The hot weather in July does not allow moving the parade to a later start time to accommodate the churches.
3. If the parade is moved to Saturday, July 3, should we also move the evening event and fireworks to the same day? Public Safety staff have expressed concerns over their ability to get volunteers (COPS) and outside officers on two separate days if the parade is Saturday morning and the evening event is held on Sunday. As such, it is recommended by staff that all events be held on the same day. The other option is to have the parade on Saturday morning and the evening events on Sunday night.
4. Lastly, should the attendance for the evening event be reduced from previous years? We have traditionally distributed 12,000 free wristbands for the event and approximately 8,000-9,000 actually attend. In order to assist with social distancing, it may be prudent to reduce the

number of entrants by reducing the number of wristbands distributed. If we cut the number to 6,000 wristbands, that would in effect reduce our event by 50% within the fencing.

Should the City move forward with the Independence Day Celebration, COVID-19 safety-related information will be included in the advertisements. In particular, social distancing of family groups will be recommended, and masks will be suggested when moving about the event.

POLICY EXPLANATION:
There is no specific policy associated with this discussion. Staff is seeking direction from the City Council regarding the July 4, 2021 Independence Day Celebration.

FUNDING SOURCE:
General Fund

Contract Log #:
N/A

RECOMMENDATION:
Staff seeks input from the City Council regarding the July 4, 2021 Independence Day Celebration.

STAFF REPORT

MEETING: City Council - 20 Apr 2021

TITLE:
Discussion regarding the addition of two (2) classified, civil service positions to the Police Department.

FY 2019 CITY COUNCIL ORGANIZATIONAL WORKPLAN:

STAFF RESPONSIBLE:
Mark LiVigni, Interim Chief of Police

BACKGROUND/HISTORY:
Item was requested by Mayor Pro Tem Cooks.

Between 2009 and 2014, the Duncanville Police Department lost two civil service classified positions. This reduction was largely due to the Department's inability to continue to staff School Resource Officers at schools within the Duncanville Independent School District (ISD) as it dealt with an overall recruitment and retention issue which has been widespread throughout law enforcement. The lost positions went largely unnoticed as the Duncanville ISD contracted with other law enforcement entities and has since created its own police department and our department, as has many, continued to experience difficulty in hiring and retaining good, qualified personnel.

While in 2017, the Department experienced the downside of an organizational workforce evolution which saw over 200 years of police experience leave, mainly due to retirements, hard work on several levels has begun to payoff. The City Council has continued to work to make our civil service salaries more competitive, our personnel tasked with hiring for the police department have done an outstanding job in working on ways to improve our recruiting, speed up our hiring process, and all of our Department has just made a great effort to make the Department more welcoming to newly hired personnel entering a difficult profession.

Over the last year, several high-profile incidents involving police have caused mass civil unrest, destruction, and terror in our country. The role of policing in our communities has faced heavy scrutiny and demand for reform. Police professionals, the communities they serve, and their governing bodies have explored what meaningful reform looks like. Most agree that we must find ways to better handle calls for service involving citizens who find themselves in a mental crisis or suffering from a mental episode. Modern police officers generally find a safe way to deal with citizens that are suffering from a mental crisis, however, situations involving such citizens remain incredibly volatile, with potentially tragic consequences.

As the City Council of the City of Duncanville held discussions to adopt the FY21 budget in September of 2020, there was dialogue of increasing the number of sworn, fully funded classified

positions of the Duncanville Police Department by two, from sixty (60) to sixty-two (62). While these positions were not included in the FY21 budget, there was a commitment to reconsider this proposition mid-fiscal year. Approval by the City Council to adopt these additional positions will serve to enhance our ability to respond better to all citizens.

POLICY EXPLANATION:
Since the City Council adopted the FY21 budget in September 2020, the Duncanville Police Department has been invited to participate in a regional grant-funded approach to following-up with citizens experiencing a mental crisis. This initiative requests that the department provide one police officer position to a regional team.

The Duncanville Police Department has made tremendous strides with staffing over the last few years. However, newly hired officers with no prior experience must complete about ten months of training prior to working independently in patrol. The considerable amount of time invested in our officers' training causes us to risk losing ground on those great strides. As a police department with such varied demands in response responsibilities, losing ground is ill-advised. The aforementioned regional multi-disciplinary mental health team(s) would consist of licensed mental health clinicians, licensed paramedics, a team coordinator, a victims' assistant(s), an administrative assistant, and sworn police officers. The initiative, involving Parkland Hospital, and coordinated by the DeSoto Police Department, was recently funded via a two-year grant by the Dallas County Commissioner's Court. The grant total is nearly $2 million, and we are being asked to provide one police officer position to the regional team, and if possible, have our Victims Advocate attempt to make initial follow-up with persons handled from our jurisdiction, which seeks to:

1. Divert individuals in the community who suffer from mental illness, substance abuse, or other behavioral health issues from arrest and/or hospitalization when possible and appropriate.
2. Reduce the number of persons who go into active crisis, thereby reducing the need for police emergency response.
3. Connect individuals to behavioral health or other needed resources.
4. Provide community-based education/support to the families of these individuals.

Involvement in this program aligns with our values as a police department by providing a means to attempt new, cutting-edge strategies to better serve our community. However, our commitment to proper staffing is impacted by this endeavor since there are other staffing needs as well within the department. Even though our understanding is that an officer position to such a program would be reimbursed quarterly from the grant, that funding for such would not be accessible until sometime in the spring of 2022.

The department's calls for service (CFS) and other activity such as arrests and vehicular stops made have increased steadily from 2017-2019, however, response times and clearance rates have declined some. Due to 2020 being an outlier of sorts, because of COVID-19 and an effort to limit personal contacts as much as possible, 2020 is not referenced.

As our effective staffing, meaning staff already trained and working independently, has begun to improve, the department has staffed a long-time vacant traffic officer position and recently re-established an officer in the parks. As further strides are made in our effective staffing, we must keep our commitment to increasing our patrol staffing as patrol is the backbone of any police department. We must staff to a level to prevent burnout and enable our officers to make more focused assessments while problem-solving when responding to calls. Re-establishing a deployment team is also a priority to address crime and quality of life hot spots as they are presented. Further, providing more cross-training opportunities allows not only for better rounded personnel but also improves

retention and morale. Finally, adding an additional detective position should also be a priority to aid in reducing heavy caseloads and increasing clearance rates. Given this, the maximum cost of adding two classified, civil service positions, including salary, benefits, training, and sign-on bonus, is currently estimated at $183,674.00 for candidates with no experience, and $181,274.00 for candidates with prior TCOLE (Texas Commission on Law Enforcement) certification.

FUNDING SOURCE:
General

Contract Log #:
N/A

RECOMMENDATION:
Discussion and direction of funding of two (2) classified, civil service positions to the police department.

STAFF REPORT

MEETING: City Council - 20 Apr 2021

TITLE:
Recognition of Keep Duncanville Beautiful Spring 2021 Curb Appeal Residential Properties.

FY 2021 CITY COUNCIL ORGANIZATIONAL WORKPLAN:

- **2. Create high quality neighborhoods and parks**
  - **Goal 2: Maximize city and community resources to improve quality of life in a sustainable manner.**

STAFF RESPONSIBLE:
Timothy Hamilton, KDB Staff Liaison

BACKGROUND/HISTORY:
The Keep Duncanville Beautiful (KDB) Board members are charged with the responsibility of creating and implementing programs that will encourage beautification within Duncanville. The Curb Appeal Program was designed to fill this goal for residential property recognition. The properties chosen for the Spring 2021 Curb Appeal Residential Properties include:

District 1: Sue Lesley
1050 Dove Creek Dr.
Duncanville, TX 75137

District 2: Paula Lee
226 Meadowlark Ln.
Duncanville, TX 75116

District 3: Jerry Burns
622 E. Center St.
Duncanville, TX 75116

District 4: Owner requested anonymity/no public recognition.

District 5: Marcelino Jr. & Dahilla Luna
1214 Lodema Ln.
Duncanville, TX 75116

POLICY EXPLANATION:
One residential property for each of the five Council Districts in Duncanville is recognized each season for significant improvements to the exterior portion of the residence, landscape improvements, and/or long-term maintenance of the property that exemplifies high quality standards. Upon approval from the property owners, each recipient receives a sign placed in their yard for a period of one month as well as bag of gardening gifts, recognition at a regular City Council meeting, and an article including photo of the property in the City's newsletter, the *Champion*.

A Keep Duncanville Beautiful (KDB) Board sub-committee selects the Curb Appeal properties for nomination – one property per sub-committee member.

The KDB Board follows the criteria identified below:

- Property must be located within the city limits of Duncanville, Texas
- Neatness
- Flowers not mandatory
- House in good condition
- Landscaping consistent with building
- Overall maintenance (i.e. paint, shrubs etc.)

- Subjective

No seasonal decorations are considered in the judging.

FUNDING SOURCE:
Funds are budgeted in the KDB annual budget, which is funded by the DCEDC, for the yard signs and bag of gardening gifts.

Contract Log #:
N/A

RECOMMENDATION:
N/A

STAFF REPORT

MEETING: City Council - 20 Apr 2021

TITLE:
Consider a Resolution approving the terms and conditions of a Master Agreement Governing Major Capital Improvement Project between the City of Duncanville and Dallas County for the Governance of the Major Capital Improvement Program and Authorizing the City Manager to Execute the Agreement.

FY 2019 CITY COUNCIL ORGANIZATIONAL WORKPLAN:

- **2. Create high quality neighborhoods and parks**
  - **Goal 2: Maximize city and community resources to improve quality of life in a sustainable manner.**

STAFF RESPONSIBLE:
Bryan G. Ramey, II, P.E., Director of Public Works

BACKGROUND/HISTORY:
Since November 22, 2011, the City of Duncanville and Dallas County have executed agreements for transportation improvements in Duncanville as a part of the Major Capital Improvement Program (MCIP). The MCIP is a program whereby Dallas County assists communities in funding infrastructure improvement projects that will improve the capacity and safety of regional roadways and multi-modal pathways within the County. The 10-year agreement will expire on November 22, 2021 and Dallas County has requested that the City renew the agreement. The new agreement would become effective upon date executed by the Dallas County Commissioners Court.

This item would approve the Master Services Agreement between the City and Dallas County and authorize the City Manager to execute a Master Agreement with Dallas County for transportation improvements in Duncanville under the MCIP. This agreement will also allow the City to have the ability to enter into subsequent Project Specific Agreements (PSA) with Dallas County.

Execution of the updated agreement is a requirement for eligibility under the MCIP. The City has partnered with Dallas County under the MCIP to undertake transportation capital improvement project studies, designs and/or construction projects. The current construction of improvements to the portion of Wintergreen Road located within the City is the result of the City entering into a PSA with Dallas County under the MCIP. The City typically shares the cost equally with Dallas County for this type of work. However, specifics of each PSA are negotiated at the time specific projects materialize and subject to approval by the Duncanville City Council.

POLICY EXPLANATION:
By entering into this Agreement, the City is eligible for Dallas County's assistance with funding infrastructure improvement projects that will improve the capacity and safety of regional roadways and multi-modal pathways within the City.

FUNDING SOURCE:
No funds are required at this time.

Contract Log #:
N/A

RECOMMENDATION:
Staff recommends approval of a Resolution approving the terms and conditions of a Master Agreement Governing Major Capital Improvement Program (MCIP) with Dallas County, authorizing the City Manager to execute the Agreement and setting an effective date.

ATTACHMENTS:
Attachment 1 - Master Interlocal Agreement with Dallas County for Transportation Related Maintenance 2017
Attachment 2 - Resolution No. - 2021-024 - Master Agreement Governing Major Capital Improvement Program with Dallas County

ATTACHMENT 1

L-45

COURT ORDER
2017-1366

ORIGINAL

Master Interlocal Agreement (Road & Bridge District #3) Pertaining to Transportation-Related Maintenance on or About Certain Designated Roadways Situated Within the Territorial Limits of the City of Duncanville

On a motion made by Commissioner Mike Cantrell, District 2, and seconded by Commissioner Dr. Theresa M. Daniel, District 1, the following order was passed and adopted by the Commissioners Court of Dallas County, State of Texas:

BRIEFING DATE: 10/17/2017
FUNDING SOURCE: N/A

Be it resolved and ordered that the Dallas County Commissioners Court does hereby authorize the County Judge to execute the attached Master Interlocal Agreement between Dallas County and the City of Duncanville pertaining to transportation-related maintenance on or about certain designated roadways situated within the territorial limits of the City of Duncanville, Texas, Road and Bridge District #3.

Done in open court October 17, 2017, by the following vote:

IN FAVOR:	Honorable Clay Lewis Jenkins, County Judge
	Commissioner Dr. Theresa M. Daniel, District 1
	Commissioner Mike Cantrell, District 2
	Commissioner John Wiley Price, District 3
	Commissioner Dr. Elba Garcia, District 4
OPPOSED:	None
ABSTAINED:	None
ABSENT:	None

Recommended by: Alberta Blair
Originating Department: Public Works

ATTACHMENT 1

MASTER INTERLOCAL AGREEMENT BETWEEN DALLAS COUNTY AND THE CITY/TOWN OF DUNCANVILLE PERTAINING TO TRANSPORTATION-RELATED MAINTENANCE ON OR ABOUT CERTAIN DESIGNATED ROADWAYS SITUATED WITHIN THE TERRITORIAL LIMITS OF THE CITY/TOWN OF DUNCANVILLE

This Master Interlocal Agreement ("Master Agreement") is made by and between Dallas County, Texas (hereinafter "County") and the City/Town of Duncanville, Texas (hereinafter "City/Town" refers to the applicable City or Town, which is a party to this Master Agreement) acting by and through their duly authorized representatives and officials, for the purpose of Transportation Improvements on roads inside Dallas County.

WHEREAS, pursuant to Court Order 2017-1366, dated October 17, 2017 County Commissioners Court approved participation in Transportation Projects within the City/Town of Duncanville; and

WHEREAS, Chapter 791 of the Texas Government Code and Chapters 251 and 472 of the Texas Transportation Code provide authorization for local governments to contract amongst themselves for the performance of governmental functions and services;

WHEREAS, the County and the City/Town desire to enter into an Interlocal Agreement (hereinafter "Master Agreement") for the purpose of jointly coordinating, facilitating and/or funding improvements and/or maintenance activity on certain duly qualified "Type B" Roadways, also situated wholly within the territorial limits of the City/Town; and

WHEREAS, the County and the City/Town desire to enter into a Master Agreement for the purpose of jointly coordinating, facilitating and/or funding improvements and/or maintenance activity on certain duly qualified "Type "C" Roadways, also situated wholly within the territorial limits of the City/Town; and

WHEREAS, the County and the City/Town desire to enter into a Master Agreement for the purpose of the City/Town retaining and authorizing County, through its Road & Bridge forces, to maintain and/or improve various "Type E" Roadways, situated wholly within the territorial limits of the City/Town; and

WHEREAS, the County and the City/Town desire to enter into a Master Agreement for the purpose of the City/Town authorizing and retaining County, through its Road & Bridge forces, to perform minor transportation-related improvements and/or maintenance services, including but not limited to pothole repair, cleaning and clearing of drainage culverts, roadway debris removal, and the like, which services do not fall squarely within the purview of "Type B" or "Type "E" Roadway Projects, such projects to be performed on or about public roadways and alleyways situated wholly within the territorial limits of the City/Town; and

WHEREAS, this collaboration between the County and the City/Town is consistent with Strategy 4.2 of Dallas County's Administrative Plan in that it fosters partnership between the County and

local cities therein on local transportation projects;

NOW THEREFORE, THIS AGREEMENT is hereby made and entered into between the County and the City/Town for the mutual consideration stated herein:

I. DEFINITIONS

The following definitions are incorporated by reference into this agreement for all purposes.

1. Type B: Improvements and maintenance of thoroughfares and bridges of major cross-county importance which are either existing or proposed. The Regional Thoroughfare Plan for North Central Texas Council of Governments will be used as a guide to determine which thoroughfares are of major cross-county importance.
2. Type C: Improvements and maintenance of thoroughfares which are affected by state highway programs, planning and policies, including right-of-way, curb and gutter, and storm sewer projects that participate with state department of highways and public transportation as designated by the state as being part of the state highway system.
3. Type E: Improvements and maintenance of streets, alleys, roads, bridges and drainage facilities for a local governmental entity as defined under Chapter 791 of the Texas Government Code.

II. PURPOSE

City/Town has requested in the past, and will likely request in the foreseeable future (1) that the County participate in the funding of, certain roadway improvements and/or maintenance projects ("projects") on the City/Town's street system, which projects shall be duly qualified "Type B" Roadway Projects; (2) that County participate in the funding of, certain roadway improvements and/or maintenance projects ("projects") on the City/Town's street system, which projects shall be duly qualified "Type C" Roadway Projects; (3) that the County provide certain roadway improvements and/or maintenance services ("projects") on the City/Town's street system, which projects shall be duly qualified "Type E" Roadway Projects; or (4) that the County, through its Road & Bridge forces, perform certain minor transportation-related improvements and/or maintenance services on or about the City/Town's streets and alleyways, which do not fall squarely within the collaborations contemplated by either of the aforementioned. The terms and conditions set forth herein provide the cooperative framework for the County and the City/Town to jointly undertake one or more of these transportation-related maintenance projects upon public roadways situated wholly within the incorporated and territorial jurisdiction of the City/Town.

Each roadway maintenance project commenced hereunder shall be fully and specifically set forth and described in a separate Project Specific Agreement ("PSA"), and shall be approved by specific order of the Dallas County Commissioners Court, as well as the governing body of the City/Town.

Projects undertaken pursuant to this Agreement are for the benefit of the City/Town and the County, and not the purposeful benefit of any third parties. It is the express intention of the

City/Town and the County that any person or entity, other than the City/Town or the County, receiving services or benefits hereunder shall be deemed incidental beneficiaries only.

Nothing herein shall be construed so as to prevent the County and the City/Town from collaborating and working jointly, without prior and formal approval of their respective governing bodies, in cases of national, state or local emergencies or natural disasters.

III. CITY/TOWN'S CONTRIBUTION

For duly qualified "Type B" and "Type C" Roadway Projects contemplated hereunder, the City/Town shall be responsible for the total funding and payment for the roadway maintenance services, less any amounts contributed by the County, which contributions, if any, may not exceed fifty percent (50%) of the total project costs, and may be made through commitment of financial resources or in-kind services, i.e. use of County's labor, equipment and/or materials.

For all other projects contemplated hereunder, the City/Town shall be responsible for one hundred percent (100%) of the funding for services provided in whole or in part through the use of County Road & Bridge personnel, equipment and/or materials.

All expenditures herein undertaken by the City/Town or the County for the performance of these government functions shall be made from current revenues available to them.

IV. CITY/TOWN'S OBLIGATIONS

Prior to the commencement of any project hereunder, the City/Town shall clearly detail the location, scope and nature of the services it desires performed. Should the City/Town desire that the County, through deployment of its Road & Bridge workforces, perform such services, the County shall prepare a written and detailed proposal for the City/Town's consideration and approval, indicating all work to be performed by the County, and at what costs and expense to the City/Town. Before any such work commences, the City/Town and the County must have a clear and mutual understanding of the scope of services to be provided by the County and the costs associated with each such project. Said mutual understanding shall be evidenced by written documentation, i.e. project specific agreements, which shall only be binding once approved by the County and the governing body of the City/Town.

For all projects wherein the County is obligated to provide improvements and/or maintenance services, immediately upon the County's commencement of work duly authorized by them, the City/Town shall set aside, segregate and escrow for the County's benefit, the full agreed amount for costs and expenses for each project undertaken. County may elect to bill against segregated funds on a monthly basis for services performed during the course of the month, or it may bill against the segregated funds in full once a project is completed. In either event, the County shall be paid promptly, and in full once the project is completed.

Where required by the nature of the projects undertaken, the City/Town, at its own expense, shall be responsible for the following: (1) informing the public of the proposed maintenance or construction activity regarding the project; (2) acquiring any right-of-way necessary to complete

the project under consideration; (3) locating all manholes, water valves, and other utilities within the project; (4) making or causing to be made, all utility relocations or adjustments necessary for the execution and completion of the project; (5) remediating any hazardous or regulated materials, or other environmental hazards on or near the project site; and (6) where necessary, providing appropriate traffic control support, including but not limited to flagging, cones, barricades, shadow vehicles, arrow boards, signage, police presence, etc., to enable the project to be completed in a timely and safe manner. City/Town agrees to accomplish these functions, if required by projects under consideration, in a timely and efficient manner to ensure that such activity will not delay the County's timely performance of its improvements and/or maintenance activities.

City/Town agrees to permit the County, at the County's expense, to conduct routine special studies of traffic conditions within the City/Town, which studies may include traffic counts, measurements of speeds, delays, congestion, etc.

V. COUNTY'S CONTRIBUTION

For all projects contemplated hereunder, the County shall contribute as follows:

1. For all duly qualified "Type B" and "Type C" Roadway Projects, the County shall contribute an amount not to exceed fifty percent (50%), which contribution may be through pledge and commitment of County Road and Bridge funds, use of County Road and Bridge personnel and/or equipment, or a combination of the two.
2. For all other duly qualified projects, the County's contribution hereunder shall be limited solely to supplying labor, materials and/or equipment necessary to provide improvements and/or maintenance services, all of which shall be provided at the City/Town's, or another funding source's, expense.

VI. COUNTY'S OBLIGATIONS

County shall not undertake performance of any project hereunder, until such time as same has been specifically approved per the protocol set forth in Section II., as listed above and incorporated herein by reference. Once so approved, if called upon to do so, the County shall perform all services contemplated hereunder in a good and workmanlike manner. Further, the County shall not assign its rights, or delegate its duties and obligations hereunder to any third party without prior written approval of the City/Town. Nothing herein shall be construed to prohibit the County from using subcontractors, where reasonably necessary, to aid in the completion of projects.

Should the County, in executing any project contemplated hereunder, encounter adverse conditions unforeseen by the City/Town or the County, the County shall immediately bring same to the attention of the City/Town, and await direction and guidance from the City/Town on the resolution of same. Where reasonably required by nature of the unknown condition, the County may cease performance hereunder until such time as adverse conditions are rectified or remedied by the City/Town, and such delay shall not constitute a material breach of this Agreement.

ATTACHMENT 1

VII. TERM

The initial term of this Agreement shall be from the date of last execution by any required signatory party hereto until December 30, 2022. However, either party hereto, shall have the absolute right to terminate this Agreement, without cause, at any time, upon providing sixty (60) days written notice to the other party. If necessary, notice of termination shall be tendered consistent with the notice provisions and protocol, which is stated below and incorporated herein by reference.

VIII. LIABILITY

County and City/Town agree that each shall be responsible for its own negligent acts or omissions or other tortious conduct in the course of performance of this Master Agreement, without waiving any governmental/sovereign immunity available to the County or the City/Town or their respective officials, officers, employees, or agents under Texas or other law and without waiving any available defenses under Texas or other law. Nothing in this paragraph shall be construed to create or grant any rights, contractual or otherwise, in or to any third persons or entities.

IX. FISCAL FUNDING

Notwithstanding anything to the contrary herein, this Master Agreement is expressly contingent upon the availability of County funding for each item and obligation contained herein. City/Town shall have no right of action against the County as regards this Master Agreement, specifically including any funding by County of the Project in the event that the County is unable to fulfill its obligations under this Master Agreement as a result of the lack of sufficient funding for any item or obligation from any source utilized to fund this Master Agreement or failure of any funding party to budget or authorize funding for this Master Agreement during the current or future fiscal years. In the event of insufficient funding, or if funds become unavailable in whole or part, the County, at its sole discretion, may provide funds from a separate source or terminate this Master Agreement. In the event that payments or expenditures are made, they shall be made from current funds as required by Chapter 791, Texas Government Code.

Notwithstanding anything to the contrary herein, this Master Agreement is expressly contingent upon the availability of City/Town funding for each item and obligation contained herein. County shall have no right of action against the City/Town as regards this Master Agreement, specifically including any funding by City/Town of the Project in the event that the City/Town is unable to fulfill its obligations under this Master Agreement as a result of the lack of sufficient funding for any item or obligation from any source utilized to fund this Master Agreement or failure of any funding party to budget or authorize funding for this Master Agreement during the current or future fiscal years. In the event of insufficient funding, or if funds become unavailable in whole or part, the City/Town, at its sole discretion, may provide funds from a separate source or terminate this Master Agreement. In the event that payments or expenditures are made, they shall be made from current funds as required by Chapter 791, Texas Government Code.

ATTACHMENT 1

EXHIBIT "A'

X. MISCELLANEOUS PROVISIONS

A. **Entire Agreement.** This Master Agreement and any attachments hereto, set forth the entire agreement between the parties respecting the subject matter contained herein, and supersede all prior and contemporaneous understandings and agreements, whether oral or in writing, between the parties respecting the same.

B. **Applicable Law.** This Agreement and all matters pertinent thereto shall be construed and enforced in accordance with the laws of the State of Texas and exclusive venue shall be in Dallas County, Texas. Notwithstanding anything herein to the contrary, this Agreement is expressly made subject to the County's and the City/Town's Governmental and/or Sovereign Immunity, pursuant to Title 5 of Texas Civil Practice and Remedies Code, and all applicable State of Texas and federal laws.

C. **Severability.** If any term, covenant, condition or provision of this Master Agreement shall be declared invalid, illegal, or unenforceable in any respect by a tribunal of competent jurisdiction, the remaining terms, covenants, conditions, and provisions shall remain in full force and effect, and shall in no way be affected, impaired or invalidated thereby.

D. **Not an Agent.** County and City/Town mutually agree that neither entity acting hereunder shall be considered an agent of the other, and that each entity is responsible, if at all, for its own acts, forbearance, and deeds.

E. **Venue.** This Master Agreement and all matters pertinent thereto shall be construed and enforced in accordance with the laws of the State of Texas and venue shall lie exclusively in Dallas County, Texas.

F. **Amendment.** This Master Agreement may be supplemented and/or amended at any time through the mutual consent of both the County and the City/Town, so long as all amendments, changes, revisions, and discharges of this Master Agreement, in whole or in part, are reduced to writing and executed by the parties thereto.

G. **Notice.** All notices, requests, demands, and other communication under this Master Agreement shall be tendered in writing and shall be deemed to have been duly given when either delivered in person, or via certified mail, postage prepaid, return receipt requested to the respective parties as follows:

COUNTY:
Director of Public Works
411 Elm Street, Fourth Floor
Dallas, Texas 75202

CITY/TOWN:
Bryan G. Ramey, II, P.E.
Director of Public Works
203 E. Wheatland Road
Duncanville, Texas 75138

ATTACHMENT 1

H. **Counterparts.** This Master Agreement may be executed in multiple counterparts, each of which shall be deemed an original, but all of which shall constitute one and the same instrument.

I. **Headings.** The headings and titles used herein are for sake of convenience only, and are not intended to affect the interpretation or construction of such provisions.

J. **Contingent.** This Master Agreement is expressly contingent upon formal approval by the Dallas County Commissioners Court and the governing body of the City/Town of Duncanville, Texas.

The City/Town of Duncanville, State of Texas, has executed this Master Agreement pursuant to duly authorized City/Town Council Action on the 15th day of August, 2017.

The County of Dallas, State of Texas, has executed this Master Agreement pursuant to Commissioners Court Order Number 2017-1366 and passed on the 17th day of October, 2017.

ATTACHMENT 1

EXHIBIT "A"

Executed this the 15th day of August, 2017.

CITY/TOWN OF DUNCANVILLE:

CITY/TOWN MANAGER

ATTEST:

CITY/TOWN SECRETARY

APPROVED AS TO FORM:

~~Assistant~~ City Attorney

Executed this the 17th day of October, 2017.

COUNTY OF DALLAS:

CLAY LEWIS JENKINS
COUNTY JUDGE

APPROVED AS TO FORM:*
FAITH JOHNSON
DISTRICT ATTORNEY

Sherri Turner
Assistant District Attorney

*By law, the District Attorney's Office may only advise or approve contracts or legal documents on behalf of its clients. It may not advise or approve a contract or legal document on behalf of other parties. Our review of this document was conducted solely from the legal perspective of our client. Our approval of this document was offered solely for the benefit of our client. Other parties should not rely on this approval, and should seek review and approval by their own respective attorney(s).

ATTACHMENT 1

RESOLUTION NO. 2017-068

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF DUNCANVILLE, TEXAS, APPROVING THE TERMS AND CONDITIONS OF A MASTER INTERLOCAL AGREEMENT BETWEEN DALLAS COUNTY AND THE CITY OF DUNCANVILLE PERTAINING TO TRANSPORTATION-RELATED MAINTENANCE ON OR ABOUT CERTAIN DESIGNATED ROADWAYS SITUATED WITHIN THE TERRITORIAL LIMITS OF THE CITY OF DUNCANVILLE, ATTACHED HERETO AND INCORPORATED HEREIN AS EXHIBIT "A"; AUTHORIZING THE CITY MANAGER TO EXECUTE ALL PAPERWORK AND NECESSARY DOCUMENTS; AND, PROVIDING AN EFFECTIVE DATE.

WHEREAS, the City of Duncanville is authorized under Chapter 791, Texas Government Code, and Chapters 251 and 472, Texas Transportation Code, to enter into agreements between local governments for the performance of governmental functions and services; and

WHEREAS, Dallas County and the City of Duncanville desire to enter into a Master Interlocal Agreement to utilize Dallas County forces for minor transportation-related improvements and/or maintenance services projects with Dallas County; and

WHEREAS, the Master Interlocal Agreement allows joint coordinating, facilitating and/or funding improvements and/or maintenance activity on certain duly qualified Type "B", Type "C", and Type "E" roadways, situated wholly within the territorial limits of the City of Duncanville; and

WHEREAS, this collaboration between Dallas County and the City of Duncanville is consistent with Strategy 4.2 of Dallas County's Administrative Plan in that it fosters partnership between the county and local cities therein on local transportation projects.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF DUNCANVILLE, TEXAS, THAT:

SECTION 1. The City Council hereby authorizes, approves, and accepts the terms and conditions of the Master Interlocal Agreement between Dallas County and the City of Duncanville pertaining to transportation-related maintenance on or about certain designated roadways situated within the territorial limits of the City of Duncanville, and the City Manager is hereby authorized to execute said Agreement.

ATTACHMENT 1

SECTION 2. That the City Council of the City of Duncanville hereby authorizes the City Manager to execute the necessary documents to conform to this Resolution as appropriate.

SECTION 3. That this Resolution shall take effect immediately from and after its passage.

DULY RESOLVED AND ADOPTED by the City Council of the City of Duncanville, Texas, on the 15th day of August, 2017

APPROVED:

David L. Green

David L. Green, Mayor

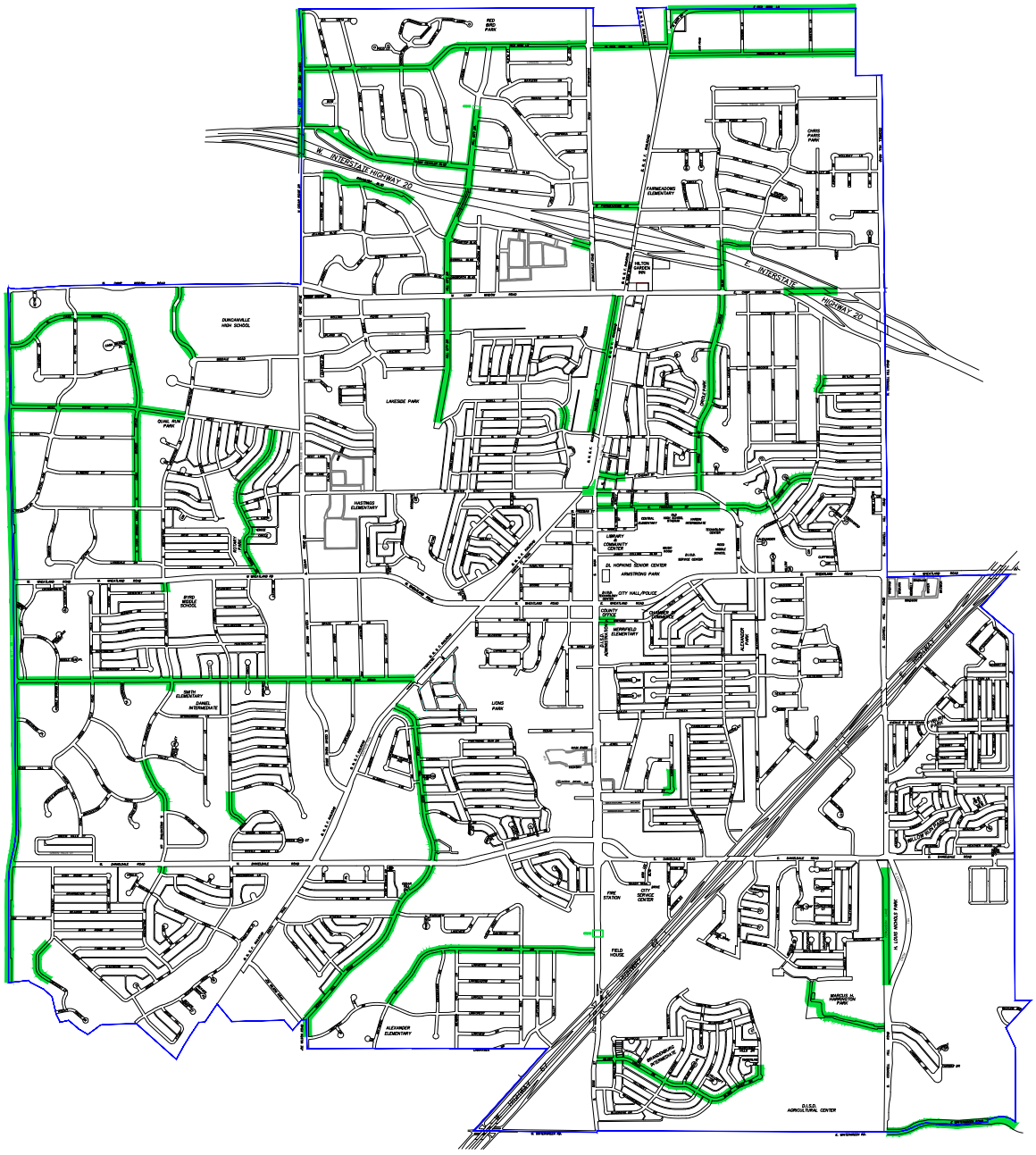
ATTEST:

Mary E. Jones, City Secretary

APPROVED AS TO FORM:

Robert E. Hager, City Attorney

ATTACHMENT 2



STRIPING LOCATIONS

City of Duncanville

Public Works Department

North

2020

RESOLUTION NO. 2021-024

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF DUNCANVILLE, TEXAS, APPROVING THE TERMS AND CONDITIONS OF THE MASTER AGREEMENT GOVERNING MAJOR CAPITAL IMPROVEMENT PROGRAM WITH DALLAS COUNTY FOR MAJOR CAPITAL IMPROVEMENT PROJECTS WITHIN THE CITY OF DUNCANVILLE, ATTACHED HERETO AND INCORPORATED HEREIN AS EXHIBIT "A"; AUTHORIZING THE CITY MANAGER TO EXECUTE THE NECESSARY DOCUMENTS; AND, PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, Chapter 791 of the Texas Government Code and Chapter 251 of the Texas Transportation Code provides authorization for local governments to contract among themselves for the performance of governmental functions and services; and

WHEREAS, Effective November 22, 2011, the City of Duncanville and Dallas County entered into a Master Agreement Governing Major Capital Improvement Program, for the purpose of transportation improvements on roadways situated within the territorial limits and jurisdiction of the City of Duncanville; and,

WHEREAS, The Master Agreement Governing Major Capital Improvement Program is set to expire on November 22, 2021 and Dallas County has requested the City renew the Master Agreement Governing Major Capital Improvement Program; and,

WHEREAS, the MCIP provides for the City of Duncanville and Dallas County to partner and cost share on roadway improvement projects within the city of Duncanville; and,

WHEREAS, the City of Duncanville desires to renew the Master Agreement Governing Major Capital Improvement Program as more fully described in Exhibit “A”.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF DUNCANVILLE, TEXAS, THAT:

SECTION 1. The Master Agreement Governing the Major Capital Improvement Program (MCIP) between the City of Duncanville and Dallas County, Texas, a copy of which is attached to this Resolution as incorporated herein as Exhibit A, is hereby approved. The City Manager is hereby authorized to execute the agreement.

SECTION 2. This Resolution shall become effective immediately upon its passage.

DULY RESOLVED AND ADOPTED by the City Council of the City of Duncanville, Texas, on the 20th day of April, 2021

APPROVED:

_____

Barry L. Gordon, Mayor

ATTEST:

_____

Kristin Downs, City Secretary

APPROVED AS TO FORM:

_____

Robert E. Hager, City Attorney

EXHIBIT A

MASTER AGREEMENT GOVERNING
MAJOR CAPITAL IMPROVEMENT PROGRAM

THIS MASTER AGREEMENT is made by and between the City/Town of _____, Texas, hereinafter ("City") or (“Town”), and Dallas County, hereinafter ("County"), acting by and through its duly authorized officials, which desire to enter into an Interlocal Agreement, hereinafter (“Master Agreement”) for the purpose of transportation improvements on roads inside Dallas County that are in the Dallas County Mobility Plan, hereinafter (“Mobility Plan”).

WITNESSETH

WHEREAS, pursuant to Court Order _____, dated _____, County Commissioners Court approved participation in Transportation Major Capital Improvement Program (“MCIP”) within the cities and towns inside Dallas County; and

WHEREAS, the approved MCIP project lists and MCIP funding commitment amounts may be modified, updated or approved by the Commissioners Court on a periodic, as-needed basis; and

WHEREAS, Chapter 791 of the Texas Government Code, as amended, provides authorization for local governments to enter into interlocal agreements; and

NOW THEREFORE, THIS AGREEMENT is hereby made and entered into by City/Town and County for the mutual consideration stated herein:

ARTICLE I. DEFINITIONS

The following definitions are incorporated into this agreement for all purposes.

A. **AMENDMENT** shall mean a written document executed by all parties detailing changes, additions or deletions in the Master Agreement.

B. **AMENITY** shall mean Project features not included in the Standard Basic Project Design including but not limited to street pavers, colored concrete, planters, irrigation, decorative lighting, special signage, or any other feature above and beyond the Standard Basic Project Design or any increase in capacity in excess of County determined requirements based on anticipated future traffic flow.

C. **CITY/TOWN** shall mean the City/Town of _____, Dallas County, Texas.

D. **CONTEXT SENSITIVE SOLUTIONS (“CSS”)** is a collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic and environmental resources, while maintaining safety and mobility. CSS is an approach that considers the total context within which a transportation improvement project will exist. CSS principles include the employment of early, continuous and meaningful involvement of the public and all stakeholders throughout the project development process. It is the intent of the Dallas County Public Works Department to

use the essential elements of CSS in all approaches to deliver the project. Some projects will dictate a very intense use of CSS, while others will only use a few of the elements, but the County will always consider CSS.

E. **COUNTY** shall mean County of Dallas, State of Texas.

F. **DIRECT PROJECT and PROGRAM COSTS** shall mean those costs that can be identified specifically with a particular project or program cost objective. These costs generally include compensation of employees for the time devoted and identified specifically to the performance of the project or program, cost of materials acquired, consumed or expended specifically for the purpose of the project or program; equipment changes; damage claims and other approved capital expenditures; change orders; travel expenses incurred specifically to carry out the project including, but not limited to, design, right-of-way, road or street drainage, utility relocation and adjustment, and construction. Direct Cost does not include the City/Town or the County's general overhead.

G. **EFFECTIVE DATE** shall mean the date of the signature of the last person necessary for this Master Agreement to become effective.

H. **FIVE PHASE PROJECT DELIVERY SYSTEM** shall mean the process for delivering a project from conception to completion as detailed in Attachment A, Project Management Practices Manual ("Practices Manual" or "Attachment A"), which is attached hereto and incorporated herein by reference, as well as any amendments, updates, additions, or supplements thereto, which are also incorporated herein by reference. This Master Agreement references the most current edition of the Practices Manual. Amendments, updates, additions, or supplements may be issued by the Dallas County Public Works Department to the Practices Manual, which may be provided to the city/town on an as-needed basis during the term of this Master Agreement. The five phases of the project delivery system are planning, design, right-of-way, utility clearance, and construction.

I. **FUNDING AGREEMENT ("FA")** shall mean the agreement between the County and a City/Town to establish a preliminary proposed budget for a project, including the required funding match from the City/Town in an amount equal to or greater than County MCIP funding commitment. As design is completed and the engineering estimate is refined, the Funding Agreement ("FA") shall be incorporated into the Project Specific Agreement ("PSA"). A FA and/or PSA is necessary before beginning engineering design.

J. **INDIRECT COSTS** shall mean those costs that benefit more than one project and cannot be readily identified with a particular final project or program cost objective. Their precise benefits to a specific project are often difficult or impossible to trace.

K. **IN-HOUSE PROJECT DELIVERY COSTS ("IHPD")** shall mean all costs associated with the development of the Major Capital Improvement Program (MCIP) "Call for Projects", selection of projects, scoping of projects, project design, property acquisition and construction of projects. Cost Accounting shall include but is not limited to employee time reimbursement, materials, equipment, and other expenditures necessary for the management and continuation of the MCIP.

L. **INTERLOCAL AGREEMENTS** shall mean contracts or agreements entered into between City/Town and County in accordance with the Texas Government Code, Chapter 791.

M. **LEAD AGENCY** shall mean that entity responsible for project management, including, but not limited to planning, design, right-of-way acquisition, approved utility relocation or adjustment and construction unless otherwise designated.

N. **MASTER AGREEMENT** ("MA") shall mean this document including all incorporated documents, attachments, and exhibits.

O. **MEMORANDUM OF AGREEMENT ("MOA")** shall mean a written document that includes, but is not limited to a MOA, MOU, FA, and/or PSA, which incorporates the results of the Preliminary Design Charrette.

P. **MEMORANDUM OF UNDERSTANDING "MOU")** shall mean a written document that includes, but is not limited to a MOA, MOU, FA, and/or PSA, which incorporates the results of the Preliminary Design Charrette.

Q. **MULTI-MODAL CONNECTIVITY IMPROVEMENTS** shall mean projects which comply with the concepts in the Moving Ahead for Progress in the 21st Century Act ("MAP-21"), any supplements and/or amendments thereto, or any future federal transportation acts which increase safety, accessibility, flexibility, efficiency, and enhance the integration and connectivity of the transportation system, across and between modes throughout the County for motorized and non-motorized users.

R. **ORPHAN ROADS** shall mean all or part of a street or road right-of-way, which are outside the incorporated limits of a municipality (or municipalities) and the incorporated area of the municipality (or municipalities) abuts or extends into the right-of-way. These roadway segments have, in effect, been "orphaned" by the abutting City/Town (or cities) that they serve in that they have been left unincorporated. Thus, the County has primary responsibility for maintenance, operation, enforcement, police and/or emergency services within these unincorporated rights of way.

S. **PARCEL OR PARCELS** shall mean those portions or part of land and improvements located either wholly or partially thereon, identified by County, City/Town or other stakeholder as required for right-of-way requirements of the Project. Such right-of-way shall include the existing street, road, drainage or other City/Town or County real property ownership and all additional real property to be utilized for the Project.

T. **PRELIMINARY CONCEPT CHARRETTE ("PCC")** shall have the same meanings and purposes as the Preliminary Design Charrette, but be conducted very early in the design start, before substantial design is underway. The conditions for which a PCC is appropriate will be determined by the lead agency. Use of CSS will usually mean that a PCC will be conducted, since its use fits perfectly into CSS concepts. Other conditions encountered may dictate the use of a PCC, such as poor soils, presence of unconsolidated solid waste dumps, innovative integration of master planning with project delivery, unusual right-of-way ("ROW") challenges, budgetary constraints (thus calling for significant Value Engineering efforts), etc. The results of properly using a PCC will be that early consensus will be achieved on a basic approach to the project design and construction, thus avoiding wasted design funding and loss of momentum for project delivery.

U. **PRELIMINARY DESIGN CHARRETTE ("PDC")** shall mean meetings of representatives of independent engineers and stakeholders of the contracting parties of the project for the purpose of discussing feasible design alternatives, forging consensus for the selected alternative, and includes entering into a MOA, MOU, FA, and/or a PSA for the overall estimate, alignment, and scope of the project. The PDC will be scheduled when the preliminary design is complete or near completion. This means horizontal and vertical alignment alternatives have been designed, ROW requirements are at least approximately known for each alternative, and the design is 40% to 60% complete. The result of a PDC that is conducted with all the stakeholders present is that it may help assure the project is able to

overcome any challenges with design completion, ROW acquisition, utility design and relocation, and finally, road construction.

V. **PROJECT MANAGER** shall mean the person appointed by the Lead Agency who is assigned the primary duty for assuring Project Participant coordination and timely project delivery. There will be only one Project Manager assigned to a Project.

W. **PROJECT PARTICIPANTS/TEAM** shall mean independent representatives from the County, City/Town, and other stakeholders of the contracting parties as may be mutually agreed upon by the County, City/Town, and stakeholders or otherwise with responsibility for delivering the completed Project.

X. **PROJECT(S)** shall mean the proposed thoroughfare and multi-modal connectivity improvements approved by the Commissioners Court for inclusion in the Transportation MCIP and approved by the City/Town.

Y. **PROJECT DURATION** shall mean the active life of the Project. Project shall commence with the application for a Project by the City/Town and approval by the Dallas County Commissioners Court. The Project shall be considered complete when construction has been fully completed and the maintenance period has expired or the Project has been terminated in accordance with Article IV of this Master Agreement.

Z. **PROJECT SPECIFIC AGREEMENT ("PSA")** shall mean a written agreement subsequent to this Master Agreement, which is entered into to establish the contractual rights and responsibilities of the City/Town and County as it relates to a particular Project. A PSA supersedes a MOA, MOU or FA.

AA. **RIGHT - OF WAY- ("ROW")** is a strip of land that is granted, through a ROW deed, an easement or other mechanism, for the Project. ROW shall mean that real property or property interest identified by the County or the City/Town, as necessary for the construction of the Project which shall include the existing street, road, drainage or other City/Town or County real property ownership and all additional real property to be utilized for the Project.

BB. **SCOPING SHEETS** will be attached to PSA's involving construction. Scoping sheets may be attached to PSA's involving a study or design. These sheets will set forth the design criteria to be used for the Project, including the alignment, appropriate specifications, typical section and other parameters of the Project. As project goals and needs are more clearly defined, the Scoping Sheets shall be updated and revised by the Project Manager to reflect current construction goals.

CC. **SMALL WATERSHED DAM** shall mean floodwater retarding structures that were constructed by the United States Department of Agriculture ("USDA") Natural Resources Conservation Service ("NRCS"), formerly named the Soil Conservation Service ("SCS"), in watersheds less than 250,000 acres under the authority of the Flood Control Act of 1944 and the Watershed Protection and Flood Prevention Act of 1954. These structures typically have earthen embankments with principal and auxiliary spillways.

DD. **STANDARD BASIC PROJECT DESIGN** shall mean the standard County-approved City/Town criteria for paving, bridges, drainage and appurtenances, traffic control items including pavement marking, warranted uniform signals, street light foundations, pull boxes, conduit, sidewalks, medians, storage/turn lanes, access, required structural retaining walls and standard driveways excluding road or street amenities, or such design criteria as may be agreed upon by the contracting parties and listed in a Project's Scoping Sheets.

EE. **TxDOT** shall mean the Texas Department of Transportation.

FF. **UTILITIES** shall mean each City/Town utility, public utility, common carrier, governmental or quasi-governmental facility, fiber optic facility, or other facility located within the limits of the Project by virtue of Texas or federal law or agreement between the entity and the City/Town, County, or State of Texas.

GG. **UTILITY, CITY/TOWN,** also known as **CITY/TOWN UTILITY** shall mean those utilities that are owned or operated by the City/Town, which requires relocation or adjustment for the purpose of the construction of the Project as identified by Project plans.

HH. **UTILITY IN PUBLIC RIGHT-OF-WAY** shall mean all Utilities located within the limits of any governmental entity.

II. **UTILITY IN PRIVATELY OWNED RIGHT-OF-WAY** shall mean all Utilities, excluding City/Town Utilities, whose facilities are located within a private easement.

JJ. **UTILITY BETTERMENT** shall mean any increase in the capacity of any Utility's Facility adjusted or relocated as a part of the Project as compared to the existing Facility, or any upgrading of the Utility's Facility above the standard practices, devices or materials, specified by the Utility and customarily used by the City/Town or Utility on Projects solely financed by the City/Town or Utility. Provided, however, that any adjustments necessary to successfully accomplish the Project shall not be considered a Betterment, and further, that any increase in the capacity of the Utility Facility resulting solely from the replacement of devices or materials no longer regularly manufactured, processed or installed shall not be considered a Betterment, provided that such replacement shall be only to the standard devices or materials currently used on other projects financed solely by the City/Town or Utility. This meaning shall apply to utilities that are part of the Project as well as the standard basic street components (See "STANDARD BASIC PROJECT DESIGN").

ARTICLE II. PERIOD OF THE AGREEMENT

This Master Agreement becomes effective when signed by the last party whose signing makes the respective agreement fully executed (The "Effective Date"). This Master Agreement shall expire ten (10) years from the Effective Date unless terminated in accordance with Article IV of this Maser Agreement.

ARTICLE III. AMENDMENTS

This Master Agreement may be amended with the mutual consent of the City/Town and County. Any amendment must be in writing and approved by the parties' respective governing bodies through either a Court Order from Commissioners Court or a City/Town Council Resolution.

ARTICLE IV. TERMINATION, DEFAULT, TIME OF THE ESSENCE AND FORCE MAJEURE

A. TERMINATION

a. This Master Agreement may be terminated by any of the following conditions:

1. By expiration of the term of the agreement.

2. By either party, by providing written notice of termination pursuant to Article XIX, Paragraph I. of this Master Agreement establishing the effective date of termination to the other party as consequence of the party being in default of the provisions of this Master Agreement and/or any original, supplemental and/or any amended MOA, MOU, FA, and/or PSA or the failure to timely provide funding, with proper allowances being made for circumstances beyond the control of the defaulting party.

3. By either party for any reason with ninety (90) days written notice to the other party pursuant to Article XIX, Paragraph I. of this Master Agreement.

b. Should either party terminate this Master Agreement as herein provided, all existing, fully executed original and/or supplemental and/or amended MOA, MOU, FA, and/or PSA made under this Master Agreement shall not be terminated and shall automatically incorporate all the provisions of this Master Agreement.

c. In the event that any original and/or supplemental and/or amended MOA, MOU, FA, and/or PSA is terminated prior to completion of the Project, no additional Costs shall be incurred other than Costs due and payable at the time of termination for services actually performed or that shall become due and payable due to such termination. The Lead Agency, to the extent permitted, may terminate all Project contracts, unless written notice is given by either party to the other of its intent to complete the Project, and prepare a final accounting for the Project.

d. If the Project is terminated by the City/Town prior to the award of any construction contract and the Project is located within the City/Town limits, City/Town shall pay to the County the full amount expended by the County on the Project and the County shall transfer to the City/Town its rights and all deliverables that it may be entitled to receive under the existing professional services or other project contracts or agreements. Such amount shall be included in the final accounting for the Project. Such amount shall be due and payable in full ninety (90) days subsequent to the termination, or thirty days subsequent to delivery of final accounting.

e. Once the construction contract has been awarded by the governing body of the Lead Agency, the PSA for that Project cannot be terminated until completion of the construction.

f. In the event that a Project is terminated prior to the award of the construction contract, either party may, upon written notice pursuant to Article XIX, Paragraph I. of this Master Agreement, take over the Project and prosecute the work to completion by contract or otherwise at its sole cost and expense. In the event that the party completing the work is not the Lead Agency, it is agreed that the Project Manager will furnish to the Completing Party a listing of current records pertaining to any outstanding obligations or other records or information required by any project contract, including any Work Order, or requested in writing by Completing Party in either printed or electronic format or both. The Lead Agency agrees to cooperate with the Completing Party. The Lead Agency will use its best efforts to transfer to the Completing Party all contracts. Obligations under such contracts shall become the sole obligation of the Completing Party upon transfer. Completing party agrees to timely pay all future obligations under such contract as they become due and payable. Completing Party hereby releases the Lead Agency from any and all liability under such assigned contracts subsequent to date of transfer, effective upon the transfer date. Lead Agency shall exercise its best efforts to ensure a transition of services without interruption.

Either party shall have the right to retain copies of all data, information, engineering, studies, or other items produced to the date of termination.

g. In the event that no FA is approved within five (5) years of Commissioners Court approval of County MCIP funding commitment, then the County in its sole discretion, can reallocate the County MCIP funding commitment.

h. In the event the Project is being completed in phases and more than five (5) years has transpired after a completed phase without any activity on subsequent approved phases, then the County in its sole discretion, can terminate the Project and reallocate the remaining County MCIP funding.

i. In the event that the City/Town enters into a PSA with the County, if the Project has not been completed within ten (10) years from the date of Commissioners Court approval of the original PSA, then the County in its sole discretion, can terminate the Project and reallocate the remaining County MCIP funding.

j. Provisions b through j of this Article IV, Section A shall survive the termination of this Master Agreement and any MOA, MOU, FA, and/or PSA and shall be a continuing obligation until the transition of services, all payments made and the Projects are complete. All items listed or required in this provision shall be furnished by Lead Agency to Completing Party without additional cost or expense to completing party.

B. FORCE MAJEURE:

Neither County nor City/Town shall be in default or responsible for delays or failures in performance resulting from causes reasonably beyond its control and not attributable to its neglect. Such acts include but are not limited to acts of God, fire, storm, pandemic, epidemic, flood, earthquake, natural disaster, nuclear accident, strike, air traffic disruption, invasion, insurrection, lockout, stoppage of labor, riot, freight embargo, public regulated utility, or governmental statutes, orders, or regulations superimposed after the fact. Any party delayed by force majeure shall as soon as reasonably possible give the other party written notice of the delay. If reasonably practical, the party claiming the suspension shall give notice of such impediment or delay in performance to the other party within ten (10) days of the knowledge of such occurrence. The party delayed shall use reasonable diligence to correct the cause of the delay, if correctable, and if the condition that caused the delay is corrected, the party delayed shall immediately give the other party written notice thereof and shall resume performance under this Master Agreement as soon as practicable. In the event of such an occurrence, the time for performance of such obligations or duty shall be suspended until such time that such inability to perform, shall be removed. Each party shall make all reasonable efforts to mitigate the effects of any suspension. The provisions of this Article IV, Section B shall survive the termination of this Master Agreement.

ARTICLE V. IMMUNITY AND LIABILITY FOR ACT AND OMISSIONS

County and City/Town agree that no provision of this Master Agreement is in any way intended to constitute a waiver of any immunities from suit or liability, or a waiver of any tort limitation, that the parties have by operation of law, or otherwise. County and City/Town agree that both County and City/Town shall each be responsible for their own negligent acts or omissions or other tortious conduct in the course of performance of this Master Agreement without waiving any sovereign or governmental immunity available to either County or City/Town or their respective officials, officers, employees, or agents under Texas or other law and without waiving any available defenses under Texas or other law. In the event of joint and concurrent negligence of the parties to this Master Agreement, responsibility, if any, shall be apportioned

comparatively in accordance with the laws of the State of Texas, without waiving any defenses, including sovereign or governmental immunity, or other defenses available to the parties under federal or Texas law. Nothing in this paragraph shall be construed to create or grant any rights, contractual or otherwise, in or to any third persons or entities. The provisions of this Article V shall survive the termination, expiration, or cancellation of this Master Agreement, or any determination that this Master Agreement or any portion hereof is void, voidable, invalid, or unenforceable.

ARTICLE VI. LEAD AGENCY

A. Lead Agency shall be that entity which is responsible for the Project from conception through to completion of construction. City/Town and County may choose for the County to manage the Project through design and construction and for the City/Town to acquire ROW.

B. In the event that the City/Town is the Lead Agency the City/Town shall:

a. Provide project management and leadership from Project selection to construction completion following the 5 Phase Project Delivery System as detailed in Attachment A to this Master Agreement, which is attached hereto and incorporated herein by reference, as well as any amendments, updates, additions, or supplements thereto, which are also incorporated herein by reference. Amendments, updates, additions, or supplements may be issued by the Dallas County Public Works Department to the Practices Manual, which may be provided to the city/town on an as-needed basis during the term of this Master Agreement;

b. Lead Agency shall be responsible for hosting the Preliminary Concept Charrettes and or Preliminary Design Charrettes and Neighborhood Public Workshops;

c. Acquire ROW necessary for the Project;

d. Enter into or obtain whatever agreements or permits necessary for Project completion;

e. Provide County with the opportunity for significant input in plan development and periodic progress reviews; and

f. Provide records for periodic auditing for either financial accounting or engineering accounting or both.

C. For City/Town-led projects in which the City/Town is considering to specify transportation infrastructure elements exceeding the Standard Basic Project Design criteria, County funding will only be eligible to the Standard Basic Project Design criteria unless the City/Town and County have arrived at a mutual agreement through involvement of the County during the initial design phases, including the Design Kick-off Meeting and as necessary, the Preliminary Concept Charrette and Preliminary Design Charrette meetings.

ARTICLE VII. CITY/TOWN AGREES AS FOLLOWS:

A. To execute, within five (5) years of Commissioners Court approval of funding commitment, the necessary agreements with the County for the implementation of design and construction of the Projects mutually agreed upon and incorporated herein by reference with a PSA. Without at least a FA within five (5) years of Commissioners Court approval of the funding commitment, the County in its sole discretion can reallocate the funding commitment.

B. City/Town agrees not to allow more than five (5) years to transpire after a completed phase without any activity on subsequent approved phases, in the event that the Project is being completed in phases. If more than five (5) years transpire after a completed phase without any activity on subsequent approved phases, the County in its sole discretion, can reallocate the remaining County MCIP funding.

C. City/Town agrees to complete the Project within ten (10) years from the date of Commissioners Court approval of the PSA. If more than ten (10) years transpire, the County in its sole discretion can reallocate the remaining County MCIP funding.

D. To provide City/Town Council Resolution adopting approved preferred alignment, proposed estimated budget, and commitment to meet MCIP Project funding for each milestone as specified herein in the Master Agreement or in the FA and/or PSA.

E. The County in its sole discretion can require the City/Town to provide a plan to address outstanding issues before entering into necessary agreements for the Project to proceed.

F. City/Town agrees to share the funding of each Project with County on an equal share basis of 50%/50% or an otherwise agreed cost sharing arrangement as specified in a FA and/or PSA with the following exclusions:

   a. City/Town shall bear the entire cost of:

      1. City/Town owned utilities relocation or adjustment such as water and sanitary sewer facilities, except utility adjustments directly attributable to storm sewer improvement conflicts;
      2. Amenities including but not limited to street pavers, colored concrete, planters, decorative lighting, special signage, or any other feature over the Standard Basic Project Design;
      3. Utility Betterments;
      4. Direct costs of City/Town which is fulfilling the role of Lead Agency, shall be totally funded by City/Town unless supported by a detailed hourly accounting system equal to County's accounting system; and
      5. City/Town Indirect Costs.

G. After the City/Town and County enter into a MOA, MOU, FA and/or PSA, regarding the Project's concepts, design elements and limits by the County and City/Town at the PDC, the City/Town agrees to acquire ROW required for designated projects by voluntary dedication, the subdivision platting process and/or other legal means, to the maximum extent possible, and to ensure through the building permitting process that setback requirements are imposed to limit encroachment upon the required ROW. City/Town agrees to fund ROW not acquired, but reasonably expected to be acquired. City/Town also agrees to fund the removal of improvements that are encroachments within existing or proposed ROW areas.

H. In the event of any proposed use of the Project ROW that will conflict with the proposed Project and City/Town is unable to obtain such ROW as described above, City/Town shall notify County of such conflict. County and City/Town shall determine if the acquisition of the conflicting parcel would be in the best interest of the Project. In the event that agreement is reached and the parcel is acquired such cost shall be included in the pro rated cost of the project in the agreed upon proportions.

I. City/Town hereby grants the County authority to enter into eminent domain proceedings within the City/Town limits on each specific ROW alignment and/or project as approved by the City/Town and County.

J. To require all Utilities located within or using the present public ROW on all designated transportation projects within City's/Town's municipal limits to adjust and/or relocate said Utilities as required by the proposed improvement of the designated transportation project. City/Town Utilities shall be relocated or adjusted at no cost to County except as may be specifically set forth in this Master Agreement.

K. City/Town agrees to be cooperative on issues relating to billboards, advertising signs, non-conforming uses, zoning and similar restrictions and to exercise its best efforts to provide variances when possible to minimize costs and minimize delays of the Project. Additional Project costs caused or contributed to by the City/Town ordinance, zoning, non-conforming use determination or other requirement shall be paid in full by the City/Town.

L. City/Town shall require the adjustment and/or relocation of Utilities to be accomplished and finalized, as expeditiously as possible after approval of final plans to prevent Project schedule delays. Notwithstanding anything contained herein to the contrary, all Utilities shall be adjusted or relocated and the ROW clear for construction not later than thirty (30) days prior to the award of the construction contract. City/Town will notify the County and other stakeholders when utility conflicts would impact progress of the Project's completion. County and City/Town agree to work with all stakeholders to solve the problem; which includes engaging elected officials in the problem's resolution to prevent delays in the commencement or prosecution of construction on the Project.

M. Where planned roadway improvements (including, but not limited to storm drainage,) are in conflict with City/Town owned water and sanitary sewer systems, that could otherwise remain in place, the actual costs of the necessary adjustment of City/Town water and sewer utilities shall be pro rated at the overall percentage agreed to by City/Town and County for cost sharing. City/Town shall be responsible for funding one hundred percent (100%) of any Betterment; as well as 100% of any relocation that is caused by City/Town installation during the Project Duration. Except as provided herein, all costs for adjustment and/or relocation of utilities in the public ROW shall be the responsibility of the Utility Owner or of the City/Town Utility. Any Project delay or other damages caused by City/Town or the Utility's failure to timely relocate or adjust the facility shall be at the entire cost of City/Town.

N. To provide for continuing surveillance and control of ROW to prevent the construction, placement, storage or encroachment of any signs, personal property or other appurtenances in the existing or proposed ROW. In the event that the aforementioned features are allowed by City/Town to encroach on necessary ROW during the duration of the project, City/Town shall bear the entire cost of removal or relocation of said encroachment.

O. To provide to County for County's or County's designee's use, at no cost, adequate copies of all construction standards, codes, (specifically including zoning and development codes), plats, specifications, guidelines, standards or any other pertinent information as determined by County to be required for the completion of the Project. Additionally, City/Town shall furnish County, at no cost, such documents as necessary to keep all items previously furnished to County current.

P. To actively participate and provide authorized representation with decision-making power at the PCC and/or the PDC, preconstruction meeting, and project meetings, which are necessary to Project development and completion.

Q. City/Town agrees to provide timely review of interim submittals. "Timely review" will be agreed upon during the PCC and/or PDC as a part of the Project schedule. City/Town further agree that if no review notes are submitted by the City/Town in writing to the County in a timely basis, plans are approved as submitted.

R. When City/Town is Lead Agency, City/Town agrees to allow forty-five (45) days for County review of submittals and that any of the County's comments shall be incorporated into the final document.

S. City/Town agrees that it will pay all additional Project cost for any City/Town requested discretionary change, including, but not limited to Amenities and Utility Betterments, in or in addition to the design or construction of the Project subsequent to the City/Town's opportunity to review the sixty five percent (65%) design plans.

T. Provide at City's/Town's cost for the continuing maintenance of all the Project ROW, such as mowing, drainage, trash removal, etc., during the period between acquisition and construction.

U. During the construction of the Project and after completion of the Project, City/Town will be responsible for the control, operation, police enforcement and/or emergency services, without cost or contribution from the County.

V. After the completion of a Project and the maintenance period, the City/Town will be responsible for all future maintenance without cost or contribution from the County.

W. City/Town shall bear the entire cost of design, construction and administration for landscaping, streetscaping, streetlighting, as such items are not included in the Standard Basic Project Design and other amenities specified or requested by the City/Town in excess of the Standard Basic Project Design.

X. It is the intent of this Master Agreement that the County will be the Lead Agency. In the event that the City/Town and County agree in writing that the City/Town will manage and administer one or more projects, the City/Town and the County will enter into a FA and/or PSA as to that project(s). In such instance, the City/Town agrees to assume all Lead Agency responsibilities except as may be determined by mutual agreement and set forth in the FA and/or PSA.

ARTICLE VIII. UTILITY IMPACTS.

A. In cases where a Utility is located in a Privately Owned ROW, and it is necessary to relocate the facility or make adjustments by reason of the widening or improvement of the designated Project, the County (or City/Town if acting as the Lead Agency) will, after submission by the utility company of ROW documentation and cost estimates acceptable to the City/Town, County and other stakeholders, assign the actual costs for the relocation and/or adjustment of said utility to the Project.

B. In cases where a Utility in Public ROW, excluding City/Town Utilities, occupies any portion of the Project ROW by Texas or federal law or by agreement with the City/Town that allows or permits the City/Town to cause the relocation of the utility for the construction of the Project, the City/Town shall timely require and enforce the relocation or adjustment requirement at no cost to the Project. In the event that the City/Town has no legal or contractual right to cause the relocation, the relocation or adjustment shall be relocated or adjusted and all cost shall be a Project Cost. City/Town shall take all steps necessary to ensure that such relocation or adjustment shall not conflict with or delay the Project schedule.

ARTICLE IX. COUNTY AGREES AS FOLLOWS:

A. To provide, as a Project Cost, preliminary engineering which will define project details, e.g., location, scope of work and specific right-of-way alignment for each improvement. Such preliminary engineering shall be submitted to the City/Town for approval, prior to proceeding with the final design and any right-of-way acquisition.

B. To provide, as a Project Cost, for the construction of transportation improvements based upon design criteria conforming to Standard Basic Project Design in conformity with applicable City ordinances and standards, to the extent of Commissioners Court approved program funding. Scope of work shall include the agreed upon design standards as the basis for improvement criteria. Deviations from mutually agreed upon application of City/Town standards and/or design criteria shall require prior approval of the City/Town. Where City/Town standards do not exist, TxDOT standards as of the Effective Date of this Master Agreement shall be utilized unless otherwise mutually agreed to by the parties in the FA and/or PSA.

C. To actively participate and provide authorized representation at the PCC and/or the PDC, preconstruction meetings, and Project meetings, which are necessary to project development through project completion.

D. To provide project management of each Project where the County is Lead Agency from commencement to completion of construction. City and County may agree to redefine project management roles as beneficial to the Project as defined in the MOA, MOU, FA, and/or PSA, and/or supplemental and/or amended agreements.

E. Upon receipt of written request detailing the information requested, to provide information related to the Project to the City/Town or the City /Town's designee at no cost to the City/Town.

F. County agrees to provide review of interim submittals within forty-five (45) days of receipt, and hereby agrees that if no review notes are submitted by the County (if City/Town is filling the role as Project Manager) in writing to the City/Town within that time period, plans are to be approved as submitted.

G. To submit final engineering plans for review and written approval by the City/Town forty-five (45) days prior to submitting documents to the County Purchasing Department for advertising the project for construction.

H. To provide for the acquisition, including acquisition by Eminent Domain, of the necessary additional ROW, on designated projects, in accordance with minimum standard requirements and utilizing existing public ROW to the maximum extent possible as a Project cost.

I. To require all contractors to secure all necessary permits required by the City/Town on said construction projects.

J. To furnish record drawings of construction plans for the permanent records of the City/Town within twelve (12) months upon completion and acceptance of the transportation improvement Project.

K. To transfer the real property or property interest acquired by the County and used for the Project to the City/Town.

L. In the event the County and the City/Town agree in writing that the City/Town will be the Lead Agency for the agreed upon Project, the County will reimburse the City/Town for agreed costs as detailed in Article XII. (Funding) in this Master Agreement in an amount not to exceed the Project cost as approved by Dallas County Commissioners Court and incorporated in the FA and/or PSA.

All County payments shall be in accordance with Texas law and County policies and procedures as may be mutually agreed to by the parties and incorporated by reference in a FA and/or PSA.

ARTICLE X. PRELIMINARY DESIGN CHARRETTE (PDC), PRELIMINARY CONCEPT CHARRETTE (PCC)

A. City/Town and County, as specified in Articles VII, IX, and X of this Master Agreement, respectively, will designate officials or representatives to participate in a PCC and/or PDC to be conducted on a mutually agreed to date and location. At least part of this meeting will be conducted on the Project site.

B. Results from the PCC will identify the general project scope, the basic approach and concepts to be taken with the project, the elements of CSS that will be included, and some ideas for alignments alternatives. The Lead agency will already have been determined, as well as the project administration and management roles, which include the Project Manager. Key project participants shall be introduced to stakeholders at the PCC and or PDC. Results from the PDC will identify the preferred alignment of the project, and provide all stakeholders a commitment for project delivery schedules and project budgets.

ARTICLE XI. FISCAL FUNDING

Notwithstanding anything to the contrary herein, this Master Agreement is expressly contingent upon the availability of County funding for each item and obligation contained herein. City/Town shall have no right of action against the County as regards this Master Agreement, specifically including any funding by County of the Project in the event that the County is unable to fulfill its obligations under this Master Agreement as a result of the lack of sufficient funding for any item or obligation from any source utilized to fund this Master Agreement or failure of any funding party to budget or authorize funding for this Master Agreement during the current or future fiscal years. In the event of insufficient funding, or if funds become unavailable in whole or part, the County, at its sole discretion, may provide funds from a separate source or terminate this Master Agreement. In the event that payments or expenditures are made, they shall be made from current funds as required by Chapter 791, Texas Government Code.

Notwithstanding anything to the contrary herein, this Master Agreement is expressly contingent upon the availability of City/Town funding for each item and obligation contained herein. County shall have no right of action against the City/Town as regards this Master Agreement, specifically including any funding by City/Town of the Project in the event that the City/Town is unable to fulfill its obligations under this Master Agreement as a result of the lack of sufficient funding for any item or obligation from any source utilized to fund this Master Agreement or failure of any funding party to budget or authorize funding for this Master Agreement during the current or future fiscal years. In the event of insufficient funding, or if funds become unavailable in whole or part, the City/Town, at its sole discretion, may provide funds from a separate source or terminate this Master Agreement. In the event that payments or expenditures are made, they shall be made from current funds as required by Chapter 791, Texas Government Code.

ARTICLE XII. FUNDING

A. City/Town and County mutually agree to proportionately fund the Direct Project and Program costs as agreed by the parties in a FA and/or PSA. Unless otherwise specified in the FA and/or PSA, the County shall bear fifty percent (50%) of the total Direct Project and Program costs

excluding the Amenities, relocation or adjustment of City/Town Utilities, Utility Betterment, Indirect Cost, Direct Cost not supported by detailed hourly accounting system and other items as specified in this Master Agreement, FA, and/or PSA. County shall not be responsible for any amount of funding in excess of the Project not-to-exceed amount as shown in the FA and/or PSA. Unless otherwise specified in the FA and/or PSA, the City/Town shall bear fifty percent (50%) of all Direct Project and Program costs. In addition, the City/Town agrees to fund all other City/Town cost as provided herein, including, but not limited to, Amenities, relocation or adjustment of City/Town Utilities, Utility Betterment, Indirect Cost, Direct Cost not supported by detailed hourly accounting system, and other items as specified in this Master Agreement, FA, and/or PSA.

B. Unless otherwise stated in a FA and/or PSA, the milestones for each project shall be (1) preliminary and primary design (2) ROW acquisition and utility relocation or adjustment and (3) construction. The Lead Agency shall prepare an estimated cost for each milestone. Upon approval of the cost by the other party, each party shall fund its share of the respective milestones by placing that amount of money in an escrow account or otherwise encumber the funds to ensure that the Lead Agency will have sufficient funding available from current revenue for the timely payment of Project milestone costs. The Lead Agency may bill the other party for periodic payments for the actual amount of work completed toward the completion of the milestone. Upon completion of the milestone, the non-management party will be furnished a notice that such work has been completed and the amount of funding that may be utilized to pay subsequent milestone Project cost. Notwithstanding any other term or condition contained herein in this Master Agreement or in any FA and/or PSA, neither party will be required to award any contract until written certification has been received that funding has been placed in escrow or encumbered for the payment of the non-awarding party's portion of the Project cost.

C. In the event that the cost of the Project shall exceed the not-to-exceed amount, City/Town and County agree to either reduce the scope of construction or seek additional funding to complete the Project at the agreed upon cost share percentages. At the termination of the Project, the Lead Agency will do a final cost accounting of the Project. In the event that the amount paid by either party exceeds its portion of the actual cost, the difference will be remitted to such party. In the event that additional funds are due, the Lead Agency will bill the other party who agrees to pay such funds within thirty (30) days of receipt of such billing.

D. If the City/Town elects to manage the Project, the County will reimburse the City/Town based on invoices for actual costs expended as supported by documentation approved by the County Auditor. Any and all supporting documentation required by the County Auditor shall be included with the invoice from the City/Town.

E. After approval by the County's Commissioners Court and the City/Town's City/Town Council, and after the execution of an FA and/or PSA, the City/Town shall escrow an amount adequate for estimated Project costs, which the County may use to pay for professional services, which include, but are not limited to scoping, preliminary design, and primary design.

F. City/Town and County shall enter into a FA to establish funding commitments for both parties as required for each project within at least five (5) years of project selection unless the County and City decide to enter directly into a PSA. If the City/Town agree the Project is to be completed in phases, no more than five (5) years may transpire after a completed phase without any activity on subsequent approved phases.

G. If the City/Town and County agree to enter into a PSA without first entering into a FA, the City/Town shall enter into a PSA with the County and complete the Project within ten (10) years or less.

H. Suggested timeframes for FA's, PSA's, and/or any supplements and/or amendments thereto are:

a. As soon as the project is accepted by Commissioners Court and as a result of the Kick-off meeting, a FA to establish the Lead Agency for preliminary engineering and general funding responsibilities and procedures for reimbursement by the Participating Agency; or

b. For a PSA, when the preliminary engineering plans are at sixty percent (60%) complete, providing specific details on project scope to enter into a PSA; or

c. After construction bids are opened, amend the PSA as needed.

ARTICLE XIII. NO THIRD PARTY BENEFICIARY ENFORCEMENT

It is expressly understood and agreed that enforcement of the terms and conditions of this Master Agreement and all rights of action relating to such enforcement shall be strictly reserved to the City/Town and the County. Nothing contained in this Master Agreement shall give or allow any claim or right of action whatsoever to any other person or entity. The terms and provisions of this Master Agreement are for the benefit of the parties hereto and not for the benefit of any third party. It is the express intention of the City/Town and the County that any entity or person other than the City/Town or the County receiving services or benefits under this Master Agreement shall be deemed an incidental beneficiary only. This Master Agreement is intended only to set forth the contractual right and responsibilities of the parties hereto.

ARTICLE XIV. RIGHT OF ENTRY

The City/Town agrees that the County shall have the right to enter upon the Project area for the time period necessary for the completion of the Project. The City/Town agrees to furnish such police or other City/Town personnel as requested by the County for traffic control or other public safety matters at no cost to the Project or the County.

ARTICLE XV. LIST OF PROJECTS

City/Town agrees that it has been furnished with a list of the potential Projects as approved by the Dallas County Commissioners Court, subject to the agreement between the parties in a MOA, MOU, FA and/or PSA. City/Town stipulates and agrees that the Commissioners Court Order approving the projects identifies the potential project location and describes the type of project in sufficient detail that the City/Town is fully aware of the location and type of projects being considered.

ARTICLE XVI. REALLOCATION OF COUNTY MCIP FUNDING

The County in its sole discretion has the ability to reallocate County MCIP funding away from the City/Town's Project if the City/Town has not entered into a FA confirming the City/Town funding match within five (5) years from Commissioners Court approval of the funding commitment. The County in its sole discretion has the ability to reallocate the remaining County MCIP funding in the event the Project is being completed in phases and more than five (5) years has transpired after a completed phase without any activity on subsequent approved phases. The County, in its sole discretion, also has the ability to reallocate the remaining County MCIP funding away from the

City/Town's Project if the City/Town has not completed the Regional Transportation milestone within ten (10) years.

ARTICLE XVII. ORPHAN ROAD POLICY

A. The County encourages all cities adjacent to orphan roads in the county to develop, commit to and submit a plan to the County for completing the annexation of the orphan road segments and assuming full responsibility for these roadways. In instances where two cities abut the same orphan road segment, the County encourages the two cities to jointly develop a plan for the annexation of that segment. The County offers its assistance to the cities in developing such plans.

B. The County, at the discretion of the Commissioners Court, may give additional selection value to projects in cities that have submitted a specific plan for the annexation of orphan roads when the County selects, approves, and schedules projects for funding in the County's Major Capital Improvement Program ("MCIP"). Such preference may also be given in approving projects for road and bridge district participation (Type "B" work).

C. The County, at the discretion of the Commissioners Court, may also refuse to participate in discretionary projects, such as road and bridge district projects or MCIP projects, in a City that elects not to pursue the annexation of orphan road segments that abut its boundaries. Failure to notify the County of the City's intent to annex and/or failure to submit a plan for annexation in a timely manner shall be construed by the County as the City's election not to pursue annexation.

D. The County, at the discretion of the Commissioners Court, may select specific orphan road segments for improvement when a City commits to annexation of the segment upon completion of the project. However, the specific plan for annexation of orphan roads submitted by the City will not be limited to annexation upon completion of improvements by the County. The County improvements may be made as road and bridge projects or as MCIP Projects (subject to other MCIP criteria, including but not limited to regional thoroughfare plan designation and City cost participation).

E. This policy application is prospective and projects selected by the County and approved by the Commissioners Court prior to the date of the adoption of this policy shall not be impacted by this policy.

F. The County shall provide written notification of the adoption of, and future revisions of, this policy to the cities abutting orphan road segments.

G. The County Director of Public Works shall maintain a listing of orphan roads and the city or cities they abut and shall provide updates to the Commissioners Court and to the cities as changes occur. The listing and changes to the listing shall be based on municipal boundary and annexation information provided to the County's Public Works by the cities as required by Texas Local Government Code, Section 242.001(c).

H. The provisions of this Article XVII of this Master Agreement shall survive the termination of this Master Agreement.

(Dallas County Code, Chapter 102, Article IV, Sec. 102-131 - 102-133, 6-27-2006, 8-10-2020).

ARTICLE XVIII. SMALL WATERSHED DAMS

The County encourages all cities/towns adjacent to small watershed dams maintained by the County to develop, commit to and submit a plan to the County for assuming full responsibility for the operations and maintenance of these dams. In instances where more than one city/town abuts a small watershed dam, the County encourages the cities/towns to develop a plan for operation and maintenance of the dam. The County offers its assistance to the cities/towns in developing such plans.

A. The County, at the discretion of the Commissioners Court, may refuse to participate in MCIP projects in a City/Town that elects not to pursue accepting full responsibility for the operations and maintenance of small watershed dams within their jurisdiction. Failure to notify the County of the City/Town's intent to submit a plan for operations and maintenance of small watershed dams in a timely manner shall be construed by the County as the City/Town's election not to pursue operations and maintenance of these dams.

B. Projects selected by the County and approved by the Commissioners Court prior to the Effective Date of the adoption of this policy, shall not be impacted by this policy.

C. The County shall provide written notification of the adoption of, and future revisions of, this policy to the cities abutting small watershed dams.

D. The provisions of this Article XVIII shall survive the termination of this Master Agreement.

ARTICLE XIX. MISCELLANEOUS GENERAL PROVISIONS

A. **Applicable Law/Venue.** This Master Agreement and all matters pertinent thereto shall be governed by and enforced in accordance with the laws and case decisions of the State of Texas. Exclusive venue for any legal action regarding this Master Agreement and all matters pertinent thereto filed by either the County or the City/Town shall be in Dallas County, Texas. Notwithstanding anything herein to the contrary, this Master Agreement is expressly made subject to the County's and the City/Town's sovereign and/or governmental immunity, pursuant to Title 5 of the Texas Civil Practice and Remedies Code, and all applicable State of Texas and federal laws.

B. **Entire Agreement.** This Master Agreement constitutes the entire agreement between the parties respecting the subject matter contained herein, supersedes all prior and contemporaneous understandings and agreements, whether oral or in writing, between the parties respecting same, and may not be modified except by an instrument in writing executed by the parties hereto as herein provided.

C. **Severability.** If one or more of the provisions in this Master Agreement shall for any reason be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not cause this Master Agreement to be invalid, illegal or unenforceable, but this Master Agreement shall be construed as if such provision had never been contained herein, and shall not affect the remaining provisions of this Master Agreement, which shall remain in full force and effect.

D. **Default/Waiver/Mitigation.** It is not a waiver of default if the non-defaulting party fails to declare immediately a default or delays in taking any action. Pursuit of any remedies set forth in this Master Agreement does not preclude pursuit of other remedies in this Master Agreement or as provided by law.

E. **Federal or State of Texas Funding.** In the event that any work or part thereof is funded by State of Texas or U. S. Government funding and any statute, rule, regulation, grant, contract provision or other State of Texas or U. S. Government law, rule, regulation or other provision imposes additional or greater requirement(s) than stated herein, the City/Town agrees to timely comply therewith without additional cost or expense to the County.

F. **Headings.** The headings and titles, which are used following the roman numeral of each paragraph are only for convenience in locating various provisions of this Master Agreement and shall not be deemed to affect the interpretation or construction of such provisions.

G. **Number and Gender.** Words of any gender used in this Master Agreement shall be held and construed to include any other gender, and words in the singular shall include the plural and vice versa, unless the text clearly requires otherwise.

H. **Counterparts.** This Master Agreement may be executed in multiple counterparts, each of which shall be deemed an original, but all of which shall constitute one and the same instrument.

I. **Notice.** Any notice provided for in this Master Agreement to be given by either party to the other, shall be required to be in writing and shall be deemed given when personally delivered, or three (3) business days after being deposited in the United States Mail, postage prepaid, via certified mail, return receipt requested, or via registered mail, and addressed as follows:

County:	County of Dallas Director of Public Works Dallas County Administration Building 411 Elm Street, Fourth Floor Dallas, Texas 75202-3389
To City/Town:	City/Town of City of Duncanville Name: Aretha R. Ferrell-Benavides Title : City Manager Address 203 E. Wheatland Rd Town/City, Zip Code Duncanville, TX 75116

Either party may change its address for notice by giving the other party written notice thereof.

J. **Assignment.** This Master Agreement may not be assigned or transferred by either party without the prior written consent of the other party and formal approval by the governing body of each party.

K. **Binding Agreement, Parties Bound.** When this Master Agreement has been duly executed and delivered by both parties, this Master Agreement shall constitute a legal, valid, and binding obligation of the parties, their successors, and permitted assigns.

L. **Amendment.** This Master Agreement may not be amended except in a written instrument specifically referring to this Master Agreement and signed by the parties hereto.

M. **Effective Date.** This Master Agreement shall commence on the Effective Date. The Effective Date of this Master Agreement shall be the date it is executed by the last of the parties. Reference to the date of execution shall mean the Effective Date.

N. **Contingent.** This Master Agreement is expressly subject to and contingent upon formal approval by the Dallas County Commissioners Court and by resolution of the City/Town Council.

O. **No Joint Enterprise/Venture.** City/Town and County agree that neither party is an agent, servant, or employee of the other party. The parties, including their agents, servants, or employees, are independent contractors, and not an agent, servant, joint enterprise/venture, or employee of any other party, and are responsible for their own acts, forbearance, negligence, and deeds, and for those of their agents, servants, or employees in conjunction with this Master Agreement. No joint enterprise/venture exists between the City/Town and County.

The City/Town of _____, State of Texas, has executed this Master Agreement pursuant to duly authorized City/Town Council Resolution _____, Minutes_____ dated the ____ day of _____, 20__.

The County of Dallas, State of Texas, has executed this Master Agreement pursuant to Commissioners Court Order Number _____ and passed on the ____ day of _____, 20__.

(the remainder of this page intentionally left blank)

(signatures appear on the following page)

EXHIBIT A

CITY/TOWN OF _____

BY _____

TITLE _____

DATE_____

ATTEST_____
CITY SECRETARY \ ATTORNEY

COUNTY OF DALLAS

BY _____
Clay Lewis Jenkins, County Judge

DATE _____

APPROVED AS TO FORM*:
JOHN CREUZOT
DISTRICT ATTORNEY

BY _____
Jana Prigmore Ferguson
Assistant District Attorney

*By law, the District Attorney's Office may only advise or approve contracts or legal documents on behalf of its clients. It may not advise or approve a contract or legal document on behalf of other parties. Our review of this document was conducted solely from the legal perspective of our client. Our approval of this document was offered solely for the benefit of our client. Other parties should not rely on this approval, and should seek review and approval by their own respective attorney(s).

EXHIBIT A

ATTACHMENT A

DEPARTMENT OF PUBLIC WORKS
411 ELM ST., 4TH FLOOR
DALLAS, TEXAS 75202

PROJECT MANAGEMENT PRACTICES MANUAL

5 PHASE
PROJECT DELIVERY SYSTEM

2021

EXHIBIT A

PREAMBLE

City/Town and County agree that neither party is an agent, servant, or employee of the other party. The parties, including their agents, servants, or employees, are independent contractors, and not an agent, servant, joint enterprise/venture, or employee of any other party, and are responsible for their own acts, forbearance, negligence, and deeds, and for those of their agents, servants, or employees in conjunction with this Master Agreement. No joint enterprise/venture exists between the City/Town and County.

Nothing in this manual creates a joint enterprise/venture between the County and the City/Town. This manual is being included so that it could help encourage these protocols to be followed because it will assist in the efficiencies and thereby possibly help reduce monetary obligations and duration of the projects. These guidelines are strongly recommended to be followed in order to avoid potential cost-related and/or time delay issues.

INTRODUCTION

The purpose of this Dallas County Public Works Project Management Practices Manual ("Practices Manual") is primarily to provide a standard practice guide on project management practices within the Dallas County Public Works ("DCPW") department. It is meant to ensure that a standard approach is used by all Project Managers ("PMs") and other project members in the delivery of County Major Capital Improvement Program ("MCIP") funded transportation projects. The guidelines are meant to meet the requirements and intent of the American Public Works Association's ("APWA") publication entitled "The Public Works Management Practices Manual" ("the APWA Manual"). The APWA Manual contains recommended practice statements that describe the critical elements necessary for a full-service public works agency to accomplish its mission. The practice statements in the APWA Manual "call for the development and implementation of a policy or procedure in the form of a rule, regulation, written directive, or for the execution of an activity, report, procedure or other action."

The resulting Practices Manual is intended to list a number of applicable recommended practice statements. Our basic methodology is a strong matrix approach, so that our PMs are assigned from the time a planning initiative becomes an approved project, to completion of the total project. We use the terminology found in the Project Management Institute's "A Guide to the Project Management Body of Knowledge" ("PMBOK"). This includes the definition of a "Matrix Organization." The definition is "any organization structure in which the project manager shares responsibility with the functional managers for assigning priorities and for directing the work of individuals assigned to the project."

When we speak of a project participants/team, we are referring to a group led by an appointed DCPW Project Manager ("PM") who has team members from throughout the four functional divisions of DCPW. These four divisions in DCPW are Transportation & Planning, Property Management & Utility Coordination, Engineering & Construction, and Program & Engineering Management. The PMs manage projects from cradle to completion without switching between functional divisions.

The intent of this Practices Manual is to provide an overview guide to project delivery practices, not an exhaustive "how to" manual. Greater detail on these and other Public Works practices can be found in the APWA Manual for more detailed instructions on the specific elements of project delivery. Our experience is that really thick manuals are not used as much as shorter guidelines that provide the boundaries of good practice and a standard approach on the essentials, with empowerment to individual PMs on the details of how they work to deliver their individual projects.

This Practices Manual can also serve as a guideline for the city/town to follow when the city/town is leading an MCIP project. Dallas County can provide input on the consultant selection process used by the city/town and the bidding process.

PHASE 1 -- PLANNING & PRELIMINARY DESIGN

STEP ONE, PROJECT DEFINITION

1. Dallas County Public Works, in conjunction with other Dallas County departments and with approval from Dallas County Commissioners Court ("Commissioners Court"), initiates a "Call for Projects". The Dallas County Public Works Transportation & Planning Division will adjust the project selection criteria based on the Dallas County Mobility Plan developed from input provided from the cities and/or towns, criteria that the North Central Texas Council of Governments ("NCTCOG") is using, and guidance from the County Commissioners. The final criteria and Call for Projects process will be briefed and approved by the Commissioners Court and a 5-signature letter will be used to invite the cities to participate in the MCIP Call for Projects.
2. The MCIP Call for Projects is a process that involves Dallas County, requesting a nomination of projects from all cities/towns in Dallas County, which can also involve stakeholders such as NCTCOG, Texas Department of Transportation ("TxDOT"), Dallas Area Rapid Transit ("DART") and/or others. The nomination period is open for four to six months to allow cities/towns to submit projects to the County for review. Soon after sending out notification about the MCIP Call for Projects, Dallas County Public Works will host a workshop on the

MCIP and the application process. Various aspects of this Call for Projects Workshop and process will be adjusted based on prior input from the cities/towns in Dallas County. The amount of time and submittal deadline for the cities and/or towns to nominate projects will be adjusted based on feedback from the cities/towns. This is to ensure that the cities/towns have enough time to brief their elected officials, plan for inclusion of projects in city bond elections, etc.

3. DCPW's Transportation & Planning Division helps ensure that all of the information has been submitted correctly by cities/towns. If necessary, assistance may be provided to some of the smaller city/town staffs with preparation of their project submissions. A matrix team that consists of DCPW employees begins with field evaluations of the projects for conducting a feasibility review that precedes developing recommendations for selection of projects by Commissioners Court to be included in the County's MCIP. The DCPW team, with staff participation from each of the four DCPW divisions involved, provides assistance with risk assessments from various perspectives, which include cost estimates, scope definition, political aspects, funding, technical issues, utilities, safety, environmental, and traffic factors, etc. The DCPW Property Division team members examine Right-of-Way ("ROW"), utilities involvement, railroad involvement, relocations, etc.
4. Every project selected for MCIP funding commitments is then placed into a Program Year (PY) (year slated for construction start) in a spreadsheet called the "MCIP Transportation Funding Commitments" that is presented in Briefing format in a public forum to the Commissioners Court for their formal approval.
5. The MCIP has been formulated on the premise that legal agreements should reflect the nature and character of the program. Equal funding, Project Management (groups of independent stakeholders and cities/towns) methods of project delivery, and principles applied in every phase of project delivery are the essential elements of the MCIP. The time it takes for getting interlocal agreements approved should never be on the critical path of project delivery. Therefore, much effort was expended between the Civil Division of the Dallas County District Attorney's staff and DCPW staff to formulate a Master Agreement Governing Transportation Major Capital Improvement Projects ("Master Agreement"). This MCIP Master Agreement has been signed by all the cities/towns with approved projects and serves as the legal basis for future agreements between the various cities/towns and Dallas County, including but not limited to a Memorandum of Agreement ("MOA") and Memorandum of Understanding ("MOU"). Later, during project design, enough information will be known to forge a Funding Agreement ("FA") or a Project Specific Agreement ("PSA") that details the specifics of that particular project. None of the basic elements of a city-county legal agreement have to be repeated in the FA and/or the PSA, thus simplifying the process and time involved.
6. A project management planning meeting is held next with each City or Town, which has projects selected. This meeting is to initially review the selected projects and determine the basic parameters for each of the projects, such as cash flow requirements, for each participant of the project, who the lead agency for project delivery will be, agreed upon technical criteria, known risks, roles for each stakeholder, etc., all focused on assuring timely project delivery and moving the project into construction during the selected PY. If there is a great deal of uncertainty associated with the project (e.g. part of some economic development such as transit oriented development, or part of brown field development, or other significant environmental challenges, or a very significant change in planned use of an area in the future

such as industrial area converted to mixed use, etc), then the lead agency may conduct a Planning Charrette.

The purpose of the Planning Charrette meeting, with all significant participants and stakeholders, is to determine the beginning scope and the realm of possible approaches. Serious design cannot begin until there is an agreement on a relatively reasonable set of alternatives, which bear some relationship to the scope of funding currently available. Relationships will also be established at the Planning Charrette meeting involving the city/town, stakeholders, utilities and other participants of the project, which may be sustained throughout the life of the project.

7. DCPW commits to using Principles of Trust, Commitment, and Shared Vision in addition to Best Practices of Project Management Principles throughout the life of the project. Each city/town is invited to use the same principles to deliver the selected projects. This type of approach is also an integral part of Context Sensitive Solutions ("CSS"), which is a design methodology that involves early and continuous involvement of all participants and stakeholders of a project. The Planning Charrette meeting is a form of CSS. The Dallas County Mobility Plan should also be considered as part of applying CSS for project delivery.

8. For every project that the city and/or town and county stakeholders agree to assign Dallas County as the Lead Agent, a PM will be assigned by DCPW. In addition, the DCPW Assistant Director ("AD"), in consultation with the PM and other AD's or designated DCPW business unit leaders, will identify their own matrix team members for the project. Any available Project Management tools will be used to optimal effect during the life of the project.

9. An initial Project Funding & Execution Status ("PFES") and Program Management & Planning Status ("PMAPS") form will be developed by the PM for each project in coordination with the ADs (or designees) from the DCPW divisions including Program & Engineering Management Division ("PEMD"), the Engineering & Construction division and Transportation & Planning Division. Each AD or designated DCPW business unit leader will review PFES and PMAPS in order to provide an adequate workforce for each project, and ensure that their own employees' assignments are balanced.

10. A decision on the use of Subsurface Utility Engineering ("SUE") will be made before initiating design. In the analysis of candidate projects, utility relocation risks will have been identified. When these risks are high (the usual situation), then funding will be planned in the design for SUE efforts. Dallas County Public Works ("DCPW") will have in place an Indefinite Delivery, Indefinite Quantity ("IDIQ") contract for quick implementation of SUE consultant efforts. Initiatives for joint efforts of utilities are anticipated between independent participants and stakeholders wherever feasible. This information will be critical for designers to use as they launch the design. Total integration of the SUE methodology will help ensure that <u>all</u> utility impacts are considered in every phase of project delivery.

EXHIBIT A

STEP TWO, PRELIMINARY DESIGN

1. A systematic decision process as part of the DCPW Business Operating Plans ("PWBOP") updating is done to determine which design efforts will be completed with in-house designers and which will be done by consultants. For consultant selection, a rigorous and systematic process will be used to select the best qualified consultants for each project. An initial contract will be signed with a best qualified consultant to perform the entire preliminary design, or participate as a Preliminary Design liaison, trainer, or expert to advise an in-house design force for the project. As much as possible, an Indefinite Delivery, Indefinite Quantity ("IDIQ") methodology will be used to help ensure that inordinate amounts of time are not used in the best qualified selection process required by state law. Cities and/or towns who participate in the process are welcome to provide input to the County in the consultant selection process.
2. The DCPW's team of in-house design staff, a city/town, or a selected consultant firm will begin the initial design efforts under the leadership of the PM. One initial objective is to resolve alignment issues early in the design process with the participation of all stakeholders. In some circumstances, a feasibility study may be required to compare and contrast different alternatives before real design can begin. Estimated ROW takes, utility impacts, and environmental effects for each alternative may need to be reported before stakeholders decide on a preferred alternative for preliminary design.
3. CSS methodology will continue to be used, stressing total stakeholder involvement, throughout the project delivery process. Task Force meetings will be scheduled. Dallas County Public Works employees' matrix team meetings will also be scheduled.
4. When a consultant is used as the design agent, a contract will be negotiated for the preliminary design only, unless the project is relatively simple and the final solutions are not in question. The goal is to avoid protracted negotiations on the total scope and fee at the very beginning of the project, when many of the factors influencing final design consideration are not yet known. The decision to issue a new work order for completion of the Primary Design will be made after an interim evaluation on the Preliminary Design is completed using the County's consultant evaluation system.
5. A Preliminary Design Charrette ("PDC") will be planned by the PM who will lead the execution with all stakeholders (cities/towns, utilities, county, any private parties or other decision-makers/stakeholders). The scope of invitees to the PDC will be dependent upon the project's complexity and number of unknowns. The goal of the PDC is to build support behind the project and the alignment alternative that is selected. Many projects have been derailed by a lack of support by the project's independent representatives from the county, city/town, and other stakeholders. A great effort will be made to ensure attendance of all of the independent key players.
6. This consensus building effort is an integral part of any CSS approach to design. The DCPW Director and/or AD's will be personally involved and the PM will make special efforts to notify political leaders of meetings, so that the political leaders can have the meetings on

their calendars and may plan to attend. In addition, individual contacts will have to be made to ensure that utility company representatives attend meetings, since key alignment decisions will be made that can affect, or be affected by, probable utility locations. If applicable, the PDC will include an orientation walk-thru of the project site, which includes right-of-way assessment. The PM will highlight specific city/town zoning and other ROW requirements, or ask the city to highlight these.

7. As part of the CSS approach, a public involvement strategy will be forged under the leadership of the PM, and the advisement of the DCPW Transportation & Planning Division ("T&P"). Staff of DCPW's T&P will advise PMs on various public involvement techniques and methods to use to best involve the public and other stakeholders. DCPW will use innovative methods, such as workshop/small group formats. City/town methods and approaches will be respected and adhered to in this area.
8. Phase 1 ends with approval of the Preliminary Design Report, Preliminary Alignment/Profile and Preliminary Sizing of bridges and drainage structures along with SUE determination, Preliminary Survey Report, and Preliminary Utility Investigation Report.
9. The design firm or DCPW in-house design team will have begun necessary permitting and environmental assessments. Basically, the level of effort will approximate that required of the Preliminary Schematic and Environmental Assessment Phase that currently is required on TxDOT projects.
10. Project plans are estimated to be 60-65% complete at the end of Preliminary Design. A risk assessment may occur before proceeding into Primary Design to identify key aspects that may need to be resolved before or during the Primary Design.

PHASE 2 -- PRIMARY DESIGN

1. The initial task is the assignment of either a DCPW In-house design team or the negotiation of a new work order with the consultant, specifically for completing the Primary Design. A new work order for completion of the Primary Design can be negotiated after Preliminary Design is nearing completion when the unknowns should be relatively few.

2. Scope of Work is now well defined by all Phase 1 effort and includes geotechnical investigations, utility analysis (including an appropriate level of SUE), constructability review, environmental analysis, traffic analysis, ROW parcels (based on Preliminary Design), and integration of context sensitive solution elements. Other aspects in Phase 1 that may be included but not limited to are: neighborhood public workshops, key stakeholder meetings and initial coordination with utilities, as necessary. With the scope defined a PSA can be executed with attached scoping sheets defining the critical parameters for the project.

3. Part of negotiations, both with DCPW In-house design teams and consultants, includes definitive delivery dates for various deliverables, phases, and reviews. In paying submitted invoices for progress during the design period, earned value analysis concepts will be used to

track cost and schedule progress. DCPW generally does not make "cost plus" assumptions about a consultant's work efforts. Greater clarity on scope definition can be achieved with the typical multi-phase design approach of issuing separate work orders for Preliminary Design and Primary Design avoiding or minimizing the instances of misunderstanding on the true project scope.

4. The consultant or DCPW in-house design team works with all stakeholders, including utilities, under the guidance and direction of the County PM. The lead designer is the Technical Manager at this point in the process, and is always under the leadership of the PM. When an IDIQ consultant is hired to perform a survey, miscellaneous design, SUE, or materials testing, the PM is closely monitoring the progress. Also, the design firm for water and/or wastewater services will be integrated, and whenever possible, we will attempt to ensure that the design consultant for the transportation or infrastructure project is also selected by the city/town to design the municipal utility improvements. We anticipate and expect our consultants to become familiar with our 5 Phase Project Delivery System's processes and deliverables.

5. Traffic and utilities data will be considered in design, with data from the city/town, County, NCTCOG, and/or consultant. An agreed upon level of SUE will be key to input into the design details, and including utility companies involvement throughout all phases of the project.

6. Environmental assessment will be completed during this phase. Significant issues should be addressed without wasting time on clearly unimportant areas. An environmental impact analysis will be completed if the assessment shows that this analysis is required. The goal is to execute environmentally sustainable solutions that improve the overall quality of life of the transportation users and citizens of Dallas County and the city/town.

7. Right-of-Way (ROW) documents will be finalized, with quality control by the consultant or DCPW's in-house design team. The quality assurance ("QA") function will be completed by both the PM and DCPW's Property Management & Utility Coordination Division ("PMUC") in a smooth manner, using pre-coordinated checklists. At the appropriate time, the documents will be delivered to PMUC, but the PM still retains overall responsibility for timely project delivery. Early involvement on ROW issues, including utility relocation aspects such as getting possible Rights of Entry ("ROE") can be critical for obtaining vital information to ensure successful utility relocations. Early provision of final and accurate ROW documents will be a critical milestone of the design contract.

8. The Design Consultant or the DCPW In-house design team completes the work on a provided schedule. Consultants and/or DCPW's In-house design team are expected to ensure that they accomplish "muddy boots" design with true "eyes-on" on the total project site. These actions will avoid lengthy rounds of passing designs back and forth, in favor of "over-the-shoulder" reviews, as required to meet design completion timelines. These will include city/town, utilities and other interested stakeholders under the orchestration of the PM.

9. The PM completes the interim evaluation of the consultant. Special note will be taken of the consultant's system for assuring quality control ("QC") of all design efforts, including ROW documents.

10. After construction is complete, the PM performs a final consultant evaluation, using the standard evaluation system. The Consultant is given an opportunity to evaluate DCPW's project management process.

EXHIBIT A

PHASE 3 – DESIGN COMPLETION & RIGHT-OF-WAY INITIATION

1. This phase begins with the delivery of the initial, unsealed ROW documents to the County by the consultant. Consultants will first bring a few ROW documents for initial review by the PM and DCPW Property Division team members, to ensure that they fully understand the details and level of Quality Control that the County expects in their submittals. Standards and scheduling will be clearly spelled out in writing within the Consultant's contract. Deliverables will include ROW maps and deed records.
2. Consultant is required by contract to submit property owner deeds along with right-of-way maps, which have received an internal quality control process. The PM ensures utility representatives are informed of the project and all known utilities are shown on the plans. Diligent efforts must be made to ensure that all private or public utility easements are identified on the maps and plans as required in Consultant Contract. All the SUE efforts should be included in the design documents.
3. Consultants or In-house Design Team are to avoid taking ROW that is not necessary to the construction of the project. The PM works with the project participants to minimize the ROW takings and ensures the appropriate leadership is used so that project delivery dates are met.
4. The PM ensures that the county or the city/town's ROW Functional Manager works towards the efficient execution of ROW planning, appraisal and acquisition services. The DCPW's Property Division will manage the ROW Acquisition Services IDIQ contract, if this delivery tool is used. Before writing a Work Order for the ROW Acquisition Services IDIQ, the DCPW Property Division Manager may meet with the DCPW Engineering & Construction Manager or DCPW Transportation & Planning Manager, DCPW Program Engineering Manager and the PM, to ensure that an adequate project budget is available for the added cost of procuring ROW services.
5. The county or city/town PM monitors and tracks progress on ROW acquisition. The County or the city/town's PM resolves issues as they develop, keeping all stakeholders, including utilities, informed.
6. DCPW may have further final discussions with city/town, utilities and stakeholders, early enough to preclude re-work by the prime consultant. The goal is to achieve this prior to completing the final design documents.
7. Consultant will make minor design changes as directed by the PM resulting from property owner requests or other changes that arise naturally in ROW negotiations.
8. As required, the PM will be prepared to present expert testimony at any Eminent Domain hearings and any related litigation.
9. ROW is complete when all parcels necessary for construction have been acquired.

EXHIBIT A

PHASE 4 – ROW Completion & Utility Adjustment

1. ROW acquisition is carried to completion under the active project management and leadership of the PM, with proactive activity of the ROW acquisition group. If the city/town or other governmental entity such as TxDOT, is the ROW acquisition agency, the PM will still track the progress and proactively keep progress on schedule.
2. The PM will inform project participants about results of the SUE to ensure utility adjustments are accomplished in time to keep scheduled project advertisement and contract award dates. The relevant APWA practices will be used as the guide.
3. The County or City PM tracks and resolves issues and work schedules, to proactively lead efforts to minimize or avoid the obstacles of property acquisition and utilities relocation to ensure project schedule. The use of utilities Rights of Entry ("ROE") may be explored as a way that could take the utility adjustment time off the project critical path if the utility companies are agreeable. If the utility company is not agreeable to the use of ROE, then the ROW will need to be obtained before the utility company relocates. Road and Bridge ("R&B") forces may be available to help clear trees from the new ROW.
4. The city/town works with the PM and other project participants to help expedite utility relocations. Many times, franchise utilities have relationships with cities/towns that can be used beneficially to secure better cooperation. Monthly Task Force meetings are initiated during this phase to ensure early and frequent communication of all stakeholders. All project participants are to proactively work with the utilities and facilitate their relocation. DCPW policy is to have Zero Relocation of Relocations ("0RR").
5. Prior to engaging the Dallas County Purchasing Department ("Purchasing") for advertising the project for construction bids an "Advertising Risk Assessment" ("ARA") is completed. Advertising is not issued until all utilities are within a reasonable and confirmable clearance date. A deliberate decision will be made on how many days from bid opening until contract award, and how many days until the Work Order is given. Work Order dates will not be projected to occur before high assurance that all known utilities will have been relocated. A second important function of the ARA is to ascertain all the funding commitments, to update the PFES to include all funds already expended, and to calculate an up-to-date construction estimate. All of the above actions will be coordinated and finalized at a meeting scheduled and run by the PM with the DCPW Director, AD and a city/town's representative in attendance. This meeting will be scheduled as one of the critical milestones for the project.
6. The PM will ensure designers (in-house or consultant) will be kept on-call for projects if required to complete requested engineering support services during construction, such as shop drawing submittal review and consultation on design intent, assumptions, etc. The intent is to retain the best part of the effort and focus that the consultant or DCPW In-house design team has just expended in designing the project.
7. DCPW will coordinate with Purchasing and any other departments as necessary to facilitate Pre-Project Meetings to notify the nearby community and regional contractor community about the upcoming advertisement of the project for construction bids.

EXHIBIT A

PHASE 5 -- CONSTRUCTION

STEP ONE, CONSTRUCTION

1. The PM works with PEMD to advertise a project in coordination with the Dallas County Purchasing Department for advertisement, pre-bid meetings, bid opening, and award. A one hundred percent (100%) design completion up-to-date construction estimate will be completed by the PM and will be used as the fair-cost government estimate for construction bidding purposes.

2. DCPW leads the drafting of the PSA and any necessary amendments/supplements to the PSA with each city/town giving approval of final funding on a timely basis. An updated PFES will be needed at this time.

3. The PM works with PEMD to help the Dallas County Purchasing Department facilitate the construction contract award. PM works with all cities/towns to ensure a logical and timely notice to proceed is given. This order to begin work and the contract time period will be based on the status of utility relocations, any city requirements, etc.

4. The PM will plan, schedule, and execute the Pre-Construction Meeting involving key stakeholders of the project, including utility companies. The PM will schedule for attendance and participation, the DCPW Director and the AD for Engineering & Construction and/or the AD for Transportation& Planning. Careful pre-planning helps ensure the attendance of the right stakeholders and staff. The PM will normally facilitate their own meetings since they have the expertise and experience to accomplish these tasks without hiring specialized consultants.

5. Construction proceeds on schedule with Construction Management services provided by the County or the city/town. The PM helps ensure that principles of collaboration (Trust, Commitment, and Shared Vision) <u>are maintained throughout the project construction phase by the independent project participants such as contractors, cities, utility companies, transportation agencies and other key stakeholders.</u>

6. The PM ensures constant communication with customers and other project stakeholders. This may include a construction oriented neighborhood meeting, as well as periodic project newsletters, notices of key construction events or phasing, meeting with neighborhood interests (property owners, schools, churches, businesses, etc). We are interested in not only achieving a high quality end-product, but also in delivering the project in a user-friendly manner. This is all part of total Context Sensitive Solutions project delivery.

EXHIBIT A

STEP TWO, PROJECT CLOSE OUT

1. The PM ensures the final pay estimate is paid to Contractor on a timely basis with assistance from the DCPW Program & Engineering Management Division ("PEMD").
2. The PM completes final Evaluation on the Contractor, using interim evaluation results (if one was done), and performance during the entire contract period. Contractor evaluates DCPW (on a voluntary basis).
3. The PM ensures that as-built plans are provided to the ultimate owner of the project, typically the city/town, from marked-up construction plans.
4. The PM works with the PEMD to ensure total project costs are finalized, a final PFES is completed, and Program Management is able to disencumber any remaining funds to be put back into the MCIP fund.
5. The PM ensures the city/town is invoiced for their remaining portion of the Total Project Costs.
6. The PM formally turns the project over to the City by letter citing the date of return to City for maintenance.
7. The PM plans an After Action Review ("AAR") to capture lessons learned and celebrate project completion with all participants involved in project delivery from design to construction completion.
8. The PM conducts the applicable one (1) or two (2) year Maintenance Bond Inspection in conjunction with all applicable stakeholders.
9. The PM completes close out project report, including retaining the key project documents digitally and documenting key lessons learned.

EXHIBIT A

Dallas County Public Works Department's Project Delivery Team's Essential Elements for Utility Relocations

1. Know the utilities' customers **and remember that we have the same customers**.
2. Make utilities move **only if absolutely necessary to achieve the project purpose**.
3. Move utilities only once if the move is, in fact, **essential.**
4. Get involved with actual field reconnaissance early. Include and engage Project representatives or constructability personnel very early.
5. Get the acquiring agency's Right-of-Way personnel involved early.
6. Schedule initial utility meetings early. Make collaboration among independent project participants the theme.
7. Involve and invite utility representatives to neighborhood or public meetings.
8. Distribute roadway plans early to get started with the utility planning.
9. Coordinate with all utilities to ensure that one has no negative impact on another. Coordination should ensure that enough right-of-way is acquired to accommodate all of the facilities.
10. When plans are changed, get them to utility companies promptly. Provide a list of changes for all cities/towns, utilities and stakeholders in a timely manner.
11. Communicate with utilities frequently to ensure knowledge of changing personnel and the appropriate contact person.
12. Review and comment on plans to identify conflicts between utilities and the project plans.
13. If applicable, verify with utility companies their ability to move their utilities before construction needs to begin.
14. Do not begin implementing a project schedule without total feedback from all companies.
15. Identify the precise sequence of utility relocations that need to occur. Many companies are predecessors of other companies' relocations. Communicate this sequence to all utilities and other stakeholders. Ensure that the sequence is streamlined as much as possible.
16. One way of ensuring the streamlining of the utility relocation sequence is web-based notification when each utility company is completed or is scheduled to be completed with relocating their utility lines/facilities. Scheduling is as vital as the actual sequence of relocations.
17. Consider that seasonal shutdown restrictions will have significant and adverse schedule impacts, sometimes up to one (1) year. Also consider that certain times of day are restricted from utility relocation. In addition, develop procedures for emergency situations and learn the appropriate "windows of opportunity" for changeovers, etc.

18. Share accurate information with all companies and try to help ensure that they share information with each other.

19. Communicate the need to follow city/town ordinances, particularly those relating to traffic control, backfill and pavement restoration. Traffic control plan must be filed and approved.

20. Ensure that the companies have measures for handling complaints about their work and that they do not inconvenience customers more than is absolutely essential. **Remember**, 0RR!!

EXHIBIT A

GUIDELINES FOR ENSURING SMOOTH RELATIONSHIPS
BETWEEN LOCAL GOVERNMENTS AND THE UNION PACIFIC RAILROAD (UPRR)

- **Start Early Coordination –** Set up a meeting with UPRR's local representative to share project selection lists and to ascertain projects with UPRR impacts. Then on impacted projects, share preliminary designs, invite UPRR to early meetings, such as stakeholder preliminary design charrettes, public workshops, etc.
- **Work out precisely the location of railroad project impacts,** before contacting UPRR. This speeds the coordination process greatly. Use MAPSCO location, subdivision, and RR Mile Post wherever possible.
- **Use the UPRR website for a wealth of information, maps, etc.** This can save time in answering questions and can provide much information about UPRR, including points of contact, e-mail and telephone information, instructions, applications, specifications, DOT crossing information, permit requirements, ROW agreements, etc. DCPW in-house or consultant designers need to explore this web-site before launching road design whenever there is going to be a RR crossing. Procedures and responsibilities are clearly laid out, as are design guidelines and specifications. Avoid nasty surprises that can impact project costs if not budgeted.
- **Expect the UPRR owned ROW to contain many other utilities (telecommunications, power, pipelines, etc.), that you will have to pay to relocate.** These are private easements the utilities have paid for and the project will have to bear the costs of relocation. UPRR is a good source of information on the potential conflicts that you will encounter. Budgeting accurately for these costs will avoid nasty surprises later.
- **Check with UPRR before pursuing any changes to their standard agreement or attachments.** UPRR has agreements to work out in 23 states, and their lawyers are very vigilant to watch for precedents that might bind UPRR elsewhere. Work on win-wins in the body of the agreement.
- **Avoid adversarial actions and relationships.** Do not presume upon the UPRR (e.g., impossible requests that are not pursued in a timely manner, making demands they cannot meet, presuming the worst).
- **Look for ways to forge win-wins, for UPRR and the local community.** Understand that the United States Department Of Transportation ("USDOT") has a policy to reduce at-grade RR crossings. This puts tremendous pressure on railroad companies to accomplish this goal. Are there some rarely used at-grade railroad crossings in the city/town that could possibly be closed? Explore ways to eliminate them and UPRR could be more interested to meet the needs of the project that is needing UPRR assistance.
- **When appropriate, have Dallas County's attorneys communicate directly with UPRR attorneys.** If we follow the spirit of win-win, then both sides will have better results, even if our attorneys are involved, as they may have to be. The Project Manager should stay involved to ensure that going down "legal rabbit trails" is avoided whenever possible.
- **When you are in doubt and have searched all the readily available information, contact UPRR's Real Estate Division in Omaha, NE.** Even though UPRR staff have large territories to cover, they are never too busy to help you proactively solve a problem and forge a win-win situation. If you setup a "folder number," with UPRR this will save them much time in looking up the project file information.

STAFF REPORT

MEETING: City Council - 20 Apr 2021

TITLE:
Consider a Resolution approving the terms and conditions of Amendment #2 to the Municipal Maintenance Agreement with the State of Texas Department of Transportation (TXDOT) to allow the City to install and maintain the restriping and installation of delineators for bike and pedestrian traffic and the bridge at the intersection of US 67 and Danieldale within TXDOT right-of-way.

FY 2020 CITY COUNCIL ORGANIZATIONAL WORKPLAN:

- **1. Most engaged citizens in America**
  - **Goal 2: Maximize city and community resources to improve quality of life in a sustainable manner.**

STAFF RESPONSIBLE:
Bryan G. Ramey II, P.E., Public Works Director

BACKGROUND/HISTORY:
On July 11, 1994, the Texas Department of Transportation, (TXDOT), and the City of Duncanville, the "City" entered into a Municipal Maintenance Agreement intended to cover and provide for State participation in the maintenance of State routes within the City.

The City designed and is constructing roadway improvements to Danieldale Road, from Main Street to U.S. Highway 67. The improvements to be constructed reconfigures this segment of Danieldale from a 6 lane roadway to a 4 lane roadway with two bike lanes on either side. In an effort to continue bike lanes across the bridge at U.S. 67 and Danieldale Road, TXDOT approval is required to place delineators to distinguish the bike lanes for safety purposes. Construction of the roadway improvements has commenced and is slated for completion in the timeframe of late 2022.

TXDOT has requested the City of Duncanville approve the attached Amendment #2 to the Municipal Maintenance Agreement. Within the Agreement, the State agrees to allow the City to install and maintain the restriping and installation of delineators for bike and pedestrian traffic at the intersection of US 67 and Danieldale within the State's right-of-way and the City agrees to install the delineators and striping and to provide long-term maintenance of the delineators. The City is responsible for all costs associated with this work. TXDOT previously approved the design of the Danieldale Road elements which coincide with the State's right-of-way. The Amendment #2 to the Municipal Maintenance Agreement becomes effective when finally executed by the State and shall continue until terminated.

The attached agreement has been reviewed and approved as to form by the City Attorney.

POLICY EXPLANATION:

City Council approval is required to effectuate the Amendment #2 to the TXDOT Municipal Maintenance Agreement.

FUNDING SOURCE:
NA

Contract Log #:
1507

RECOMMENDATION:
Approval of a Resolution approving the terms and conditions of Amendment #2 to the Municipal Maintenance Agreement with the State of Texas Department of Transportation (TXDOT) to allow the City to install and maintain the restriping and installation of delineators for bike and pedestrian traffic at the intersection of US 67 and Danieldale Road.

ATTACHMENTS:
Attachment 1 - Project Location Map - Danieldale Road Construction Management Project 1
Attachment 2 - Resolution No. 2021-025 - Pdf

Attachment 1

AMENDMENT #2, TXDOT MUNICIPAL MAINTENANCE AGREEMENT
RESTRIPING AND BIKE DELINEATORS ON BRIDGE
DANIELDALE ROADWAY AND UTILITIES IMPROVEMENTS

FROM SOUTH MAIN STREET TO U.S. HIGHWAY 67 BRIDGE

Duncanville
City of Champions

RESOLUTION NO. 2021-025

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF DUNCANVILLE, TEXAS, APPROVING THE TERMS AND CONDITIONS OF AMENDMENT #2 TO MUNICIPAL MAINTENANCE AGREEMENT BY AND BETWEEN THE TEXAS DEPARTMENT OF TRANSPORTATION AND THE CITY OF DUNCANVILLE, TEXAS TO INSTALL DELINEATORS AND ROADWAY STRIPING LOCATED AT THE BRIDGE AT DANIELDALE ROAD AND U.S. 67, SPECIFICALLY DESCRIBED IN THE EXHIBIT "A" WHICH IS ATTACHED HERETO AND INCORPORATED HEREIN; AND; AUTHORIZING THE CITY MANAGER TO EXECUTE THE NECESSARY DOCUMENTS; AND, PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, the City of Duncanville desires to install and maintain the restriping and installation of delineators for bike and pedestrian traffic at the bridge and intersection of U.S. 67 and Danieldale Road; and

WHEREAS, the location where the roadway striping and bike delineators will be installed and constructed is State of Texas right-of-way; and

WHEREAS, the City desires to enter into Amendment #2 to the Municipal Maintenance Agreement with the Texas Department of Transportation to provide for the City to install and maintain the restriping and installation of delineators for bike and pedestrian traffic at the bridge at the intersection of Danieldale Road and U.S. 67; and

WHEREAS, the City has determined that entering into this Amendment #2 to the Municipal Maintenance Agreement with the Texas Department of Transportation will benefit the City and the City's inhabitants by promoting the general health, safety and welfare of the entire City; and

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF DUNCANVILLE, TEXAS, THAT:

SECTION 1. The City Council of the City of Duncanville hereby authorizes, approves, and accepts the terms and conditions of the Amendment #2 to the Municipal Maintenance Agreement by and between the Texas Department of Transportation and the City of Duncanville, Texas to install and maintain the restriping and installation of delineators for bike and pedestrian traffic at the intersection of US 67 and Danieldale Road, more specifically described in the Exhibit "A" which is attached hereto and incorporated herein.

SECTION 2. That the City Council of the City of Duncanville hereby authorizes the City Manager to execute the necessary documents to conform to this Resolution as appropriate.

SECTION 3. That this Resolution shall take effect immediately from and after its passage.

DULY RESOLVED AND ADOPTED by the City Council of the City of Duncanville, Texas, on the 20th day of April, 2021

APPROVED:

_____

Barry L. Gordon, Mayor

ATTEST:

_____

Kristin Downs, City Secretary

APPROVED AS TO FORM:

_____

Robert E. Hager, City Attorney

EXHIBIT A

STATE OF TEXAS §

COUNTY OF TRAVIS §

AMENDMENT #2 TO MUNICIPAL MAINTENANCE AGREEMENT

WHEREAS, on the **11th day of July 1994**, the Texas Department of Transportation, the "State", and the **City of Duncanville**, the "City" entered into a Municipal Maintenance Agreement intended to cover and provide for State participation in the maintenance of state routes within the City; and

WHEREAS, the **City, shall install and maintain the restriping and installation of delineators for bike and pedestrian traffic at the intersection of US 67 and Danieldale**; and

WHEREAS, the City and the State agree to amend the existing Municipal Maintenance Agreement.

AGREEMENT

NOW, THEREFORE, in consideration of the premises and mutual covenants and agreements of the parties hereto to be by them respectively kept and performed, as hereinafter set forth, the City and State do mutually agree to the amendment as follows:

State's Responsibilities

The City shall require the contractor(s) to have in place, insurance as evidenced by the State's Certificate of Insurance form. The city will also require any contractor(s) to agree to indemnify and save harmless the state from all claims and liability due the contractor(s) materials or activities of itself, its agent, or employees, performed under the agreement with the city that are caused or may result from error, omission, or negligent act.

Termination

This Amendment is expressly made subject to the rights granted to TxDOT to terminate this Amendment without cause upon notice and to the rights granted to The City to terminate this Amendment without cause upon notice after three (3) years and upon the exercise of any such right by either party, this Amendment will terminate. TxDOT or the City may terminate this Amendment upon notice at any time for a violation of the terms of this Amendment. The termination of this Amendment does not affect any other provisions of the existing Municipal Maintenance Agreement between the parties. If the City has entered into a contract with a third party to perform any services under this Amendment, this Amendment will continue in effect until the current term of the contract has expired.

In all other respects, the Agreement shall remain in force and effect without change.

EXHIBIT A

IN TESTIMONY WHEREOF, the parties have hereto have caused this amendment to be executed in duplicate. The Amendment becomes effective when last executed.

THE CITY OF DUNCANVILLE

By:_____
Aretha R. Ferrell-Benavides, City Manager

Date:_____

THE STATE OF TEXAS

Executed and approved for the Texas Transportation Commission for the purpose and effect of activating and/or carrying out the orders, and established polices or work programs heretofore approved and authorized by the Texas Transportation Commission.

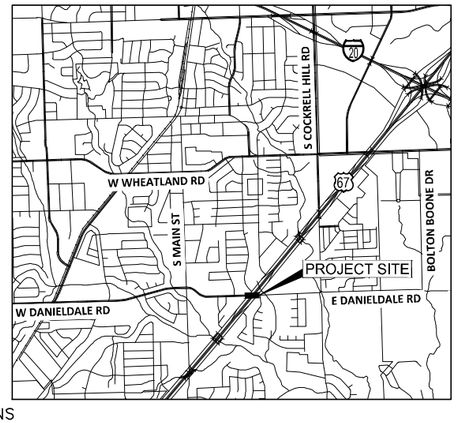
By:_____
Dallas District Engineer
Texas Department of Transportation

Date:_____

DUNCANVILLE, TEXAS
DRIVEWAY PERMIT SET FOR THE TEXAS DEPARTMENT OF TRANSPORTATION

E DANIELDALE ROAD EB/WB
BRIDGE CROSSING BETWEEN US 67 SB & NB FRONTAGE ROADS

TYPE: FOR THE PUBLIC STREET CONNECTION OF E DANIELDALE RD AND THE RESTRIPING OF BRIDGE CROSSING US 67
CONSISTING OF: CONCRETE STREET CONNECTION & PAVEMENT MARKINGS



NO EQUATIONS
NO EXCEPTIONS
NO RAILROADS

SITE LOCATION MAP
N.T.S.

DALLAS COUNTY
DALLAS DISTRICT

NOVEMBER 2020

DUNAWAY
550 Bailey Avenue • Suite 400 • Fort Worth, Texas 76107
Tel: 817.335.1121 • Fax: 817.335.7437
(TX REG. F-1114)

DESIGN SPEED

E DANIELDALE ROAD = 40 MPH
US 67 FRONTAGE ROAD = 45 MPH

BY SEALING AND SIGNING THESE PERMIT PLANS AS A PROFESSIONAL CIVIL ENGINEER LICENSED TO PRACTICE IN THE STATE OF TEXAS, I CERTIFY THAT THE PROPOSED DRIVEWAY OR PUBLIC STREET CONNECTION(S) TO THE STATE ROADWAY MEETS OR EXCEEDS THE MINIMUM STOPPING SIGHT DISTANCE REQUIRED FOR A POSTED SPEED OF 45 MPH (US 67 FRONTAGE ROAD) AND 40 MPH (E DANIELDALE ROAD) , BASED ON THE MOST RECENT TxDOT DESIGN MANUAL REQUIREMENTS.

ALL CONSTRUCTION WITHIN THE STATE RIGHT OF WAY WILL REQUIRE COMPLIANCE TO TxDOT STANDARD SPECIFICATIONS, STANDARD PLANS, AND TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION, NOVEMBER 1, 2014, AND SPECIFICATION ITEMS LISTED AS FOLLOWS SHALL GOVERN ON THIS PROJECT FOR ALL WORK WITHIN THE STATE RIGHT OF WAY.

LANE CLOSURE HOURS SHOULD BE FROM 9AM TO 3PM, MONDAY THRU FRIDAY, ONLY. ASSOCIATED SIGNS SHALL BE REMOVED WHEN NOT IN USE AND ALL PAVEMENT EDGES TREATED AT THE END OF EACH DAY FOR SAFETY IN ACCORDANCE WITH TxDOT STANDARDS.

CONTRACTOR SHALL SCHEDULE A PRE-WORK INSPECTION WITH THE TxDOT INSPECTOR, 817.291.6413, AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO BEGINNING WORK.

INDEX OF SHEETS

1.	COVER SHEET
2.	EXISTING TYPICAL SECTIONS
3.	PROPOSED TYPICAL SECTIONS
4.	ROADWAY PLAN & PROFILE
4A.	GRADING PLAN
5.	SIGNAGE & PAVEMENT MARKING PLAN
5A.	PEDESTRIAN SIGNAL PLAN
6.	SUMMARY OF SMALL SIGNS

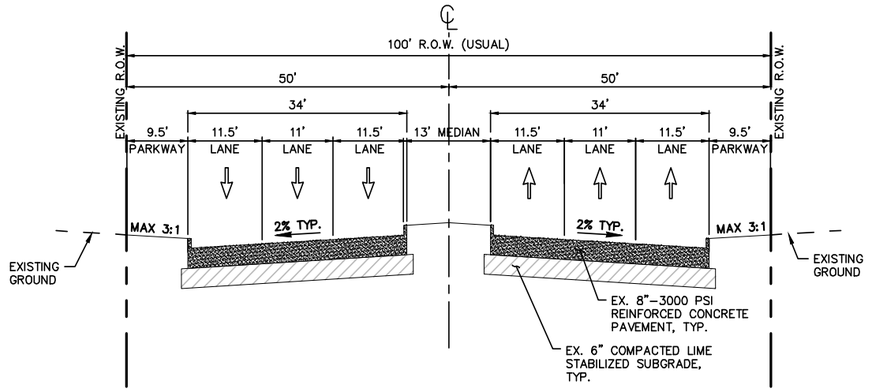
*TXDOT STANDARDS

7-18.	BC(1-12) - 14
19.	CCCG-12
20.	CPCP-14 (1 OF 2)
21.	CPCD-14 (2 OF 2)
22.	EC (1)-16
23.	EC (3)-16
24.	EC (9)-16 (1 OF 3)
25.	EC (9)-16 (2 OF 3)
26.	EC (9)-16 (3 OF 3)
27.	ED (1)-14
28.	ED (3)-14
29.	ED (4)-14
30.	ED (5)-14
31.	ED (8)-14
32.	EDGECON
33.	JS-14
34.	PED-18 (1 OF 4)
35.	PED-18 (2 OF 4)
36.	PED-18 (3 OF 4)
37.	PED-18 (4 OF 4)
38.	PEDESTRIAN SIGNAL HEAD DETAILS (DAL)
39.	PM (1) - 12
40.	PM (2) - 12
41.	PM (3) - 12
42.	SMD (GEN)-08
43.	SMD (SLIP-1)-08
44.	SMD (SLIP-2)-08
45.	SMD (SLIP-3)-08
46.	TCP (2-4)-18
47.	TCP (2-6)-18
48.	TSR (5)-13
49.	WZ (TD)-17
50.	VEGETATION ESTABLISHMENT SHEET (DAL)

* THE STANDARD SHEETS, SPECIFICALLY IDENTIFIED IN THIS INDEX OF SHEETS, HAVE BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.

STATE OF TEXAS
THUY-NHU N. NGUYEN
135427
LICENSED
PROFESSIONAL ENGINEER

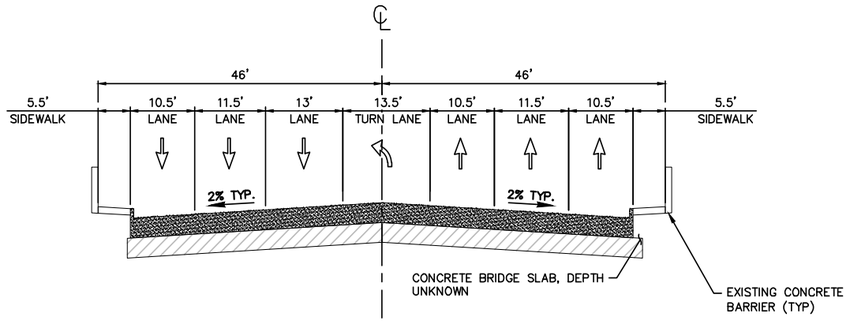
11/13/2020



EXISTING TYPICAL SECTION - E DANIELDALE ROAD

STA. 23+69 TO 24+43.87

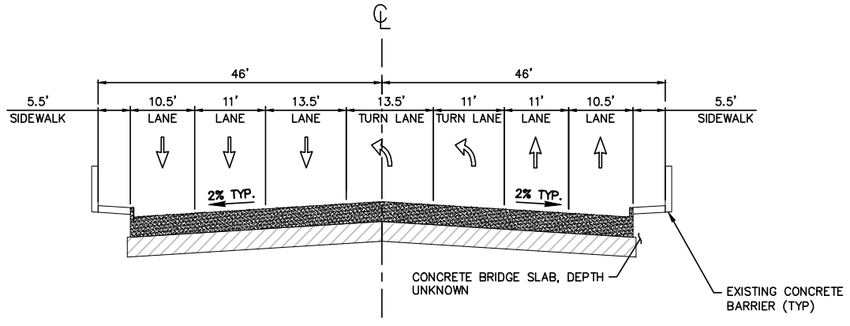
NOT TO SCALE



EXISTING TYPICAL SECTION - E DANIELDALE RD BRIDGE

WEST-BOUND TURN LANE PORTION (FACING WEST)

NOT TO SCALE



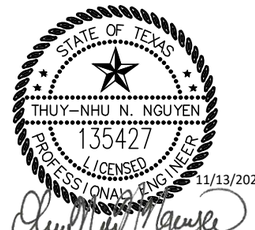
EXISTING TYPICAL SECTION - E DANIELDALE RD BRIDGE

EAST-BOUND TURN LANES PORTION (FACING EAST)

NOT TO SCALE

NOTES:

1. *EXISTING TYPICAL SECTION SHOWN IS A REGULAR TYPE B TYPICAL SECTION FROM THE AS-BUILT PLAN SET COUNTY PROJECT NO. 494-323 DATED 1978.*
2. *ROADWAY DIMENSIONS ARE MEASURED TO BACK OF CURB AS SHOWN.*



11/13/2020

DATE	BY	REV.	REVISION

DUNAWAY
TX REGISTERED ENGINEERING FIRM F-11756
550 Bailey Avenue
Suite 400
Fort Worth, TX 76107
817-335-1121

Texas Department of Transportation

© 2020

DRIVEWAY PERMIT PLANS

EXISTING TYPICAL SECTIONS

FED.RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TX				US-67
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
DAL	DALLAS	NA	NA	NA	2

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PLOTTED BY: Thuy-Nhu Nguyen

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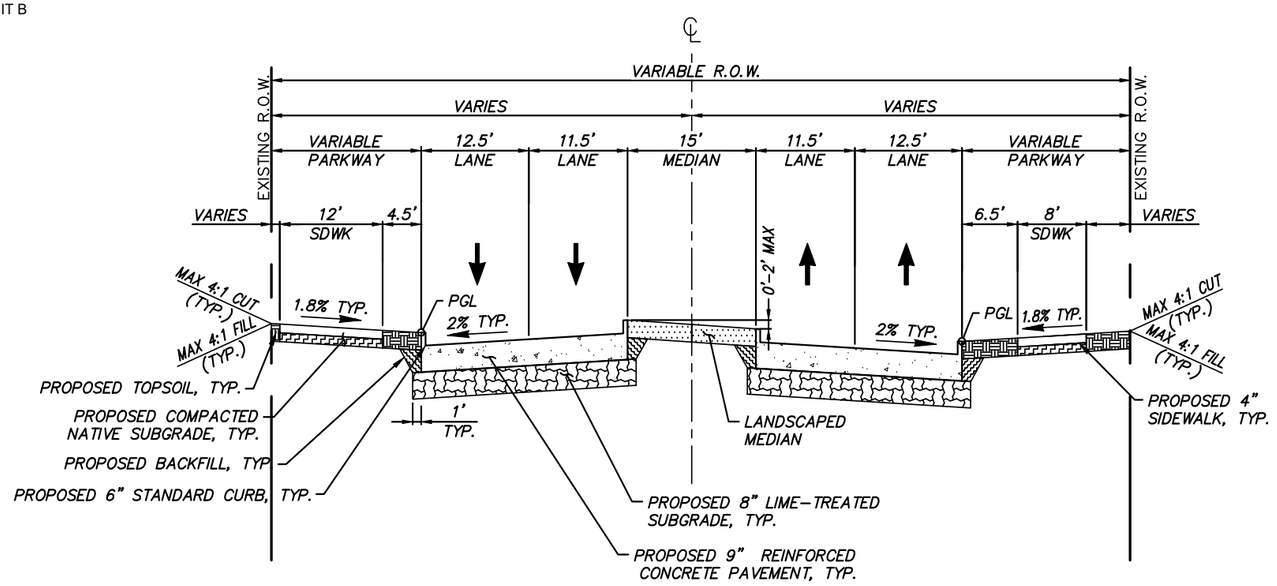
EXHIBIT B



PROPOSED TYPICAL SECTION – E DANIELDALE ROAD

STA. 23+69 TO 24+43.87
NOT TO SCALE

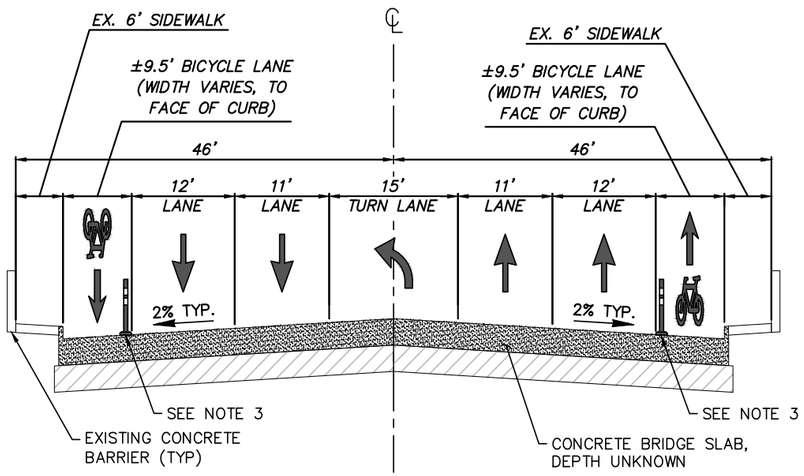
LEGEND

9" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT (MIN. CEMENT CONTENT OF 5-1/2 SACKS PER CY, AND A MIN. COMPRESSIVE STRENGTH OF 4,000 PSI @ 28 DAYS) WITH REINFORCING STEEL #4 BARS @ 18" O.C.E.W.

SUBGRADE SHALL BE MIXED TO A DEPTH OF 8" OF MIN. 6% HYDRATED LIME. LIME SHOULD MEET REQUIREMENTS OF TxDOT ITEM 260 (TYPE A) AND UNIFORMLY COMPACTED TO A MIN. OF 95% ASTM D 698. SUBGRADE SHALL BE STABILIZED WITH 36 LBS/SY OF HYDRATED LIME.

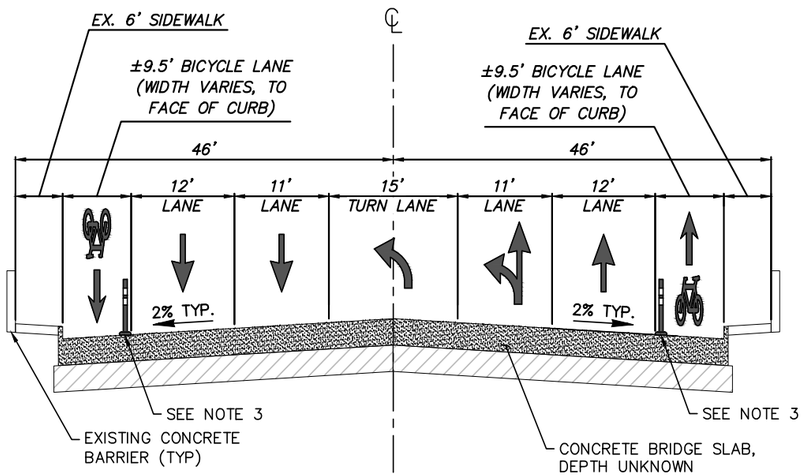
NOTES:

1. PAVING RECOMMENDATIONS ARE BASED ON GEOTECHNICAL REPORT 128-19-96 BY CMJ ENGINEERING, INC. ON SEPTEMBER 12, 2019.
2. ROADWAY DIMENSIONS ARE MEASURED TO BACK OF CURB AS SHOWN, UNLESS OTHERWISE NOTED.
3. "TUFF CURB XLP" HIGH PERFORMANCE TRAFFIC BIKE LANE DELINEATOR (W) 42" HEIGHT (IMPACT RECOVERY SYSTEMS, OR APPROVED EQUAL) @ 10' SPACING TO BE INSTALLED BY EPOXY OR OTHER METHOD THAT DOES NOT INCLUDE DRILLING, ANCHORS, SCREWS, OR ANY METHOD THAT WILL CAUSE DAMAGE TO THE EXISTING BRIDGE DECK.



PROPOSED TYPICAL SECTION–E DANIELDALE RD BRIDGE

WEST-BOUND TURN LANE PORTION (FACING WEST)
NOT TO SCALE



PROPOSED TYPICAL SECTION – E DANIELDALE RD BRIDGE

EAST-BOUND TURN LANE PORTION (FACING EAST)
NOT TO SCALE

STATE OF TEXAS
THUY-NHU N. NGUYEN
135427
LICENSED PROFESSIONAL ENGINEER
11/13/2020

DATE	BY	REV	REVISION

DUNAWAY
TX REGISTERED ENGINEERING FIRM F-1144
550 Bailey Avenue
Suite 400
Fort Worth, TX 76107
817-335-1121

Texas Department of Transportation
© 2020

DRIVEWAY PERMIT PLANS

PROPOSED TYPICAL SECTIONS

FED.RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TX				US-67
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
DAL	DALLAS	NA	NA	NA	3

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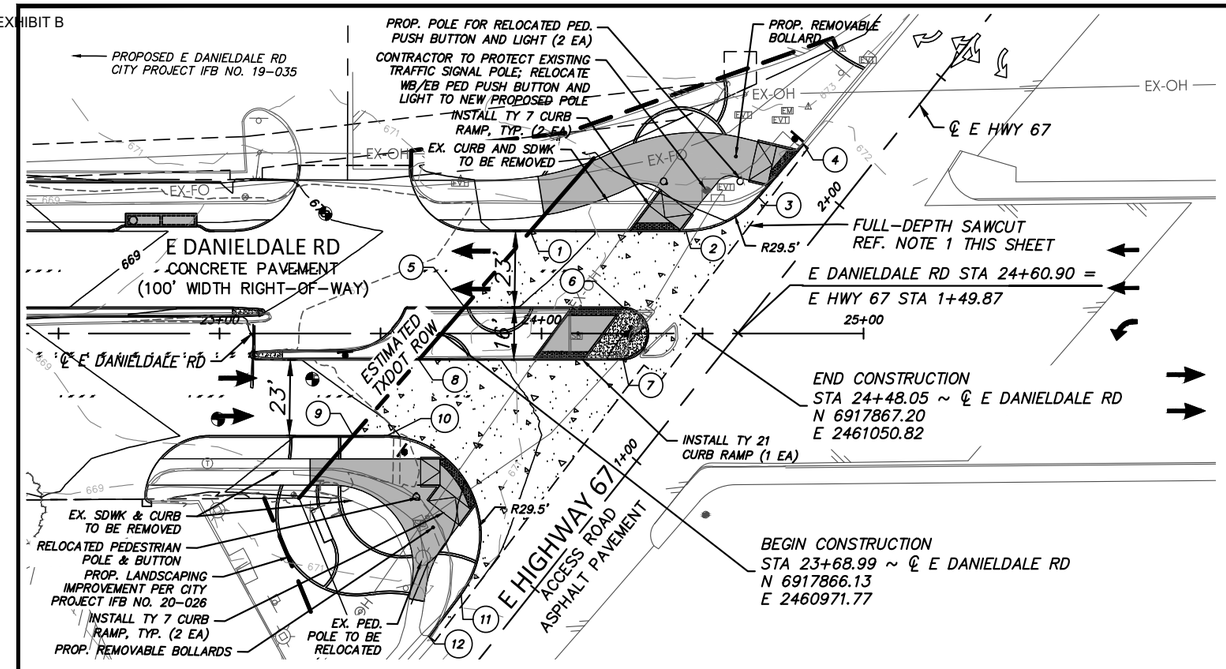
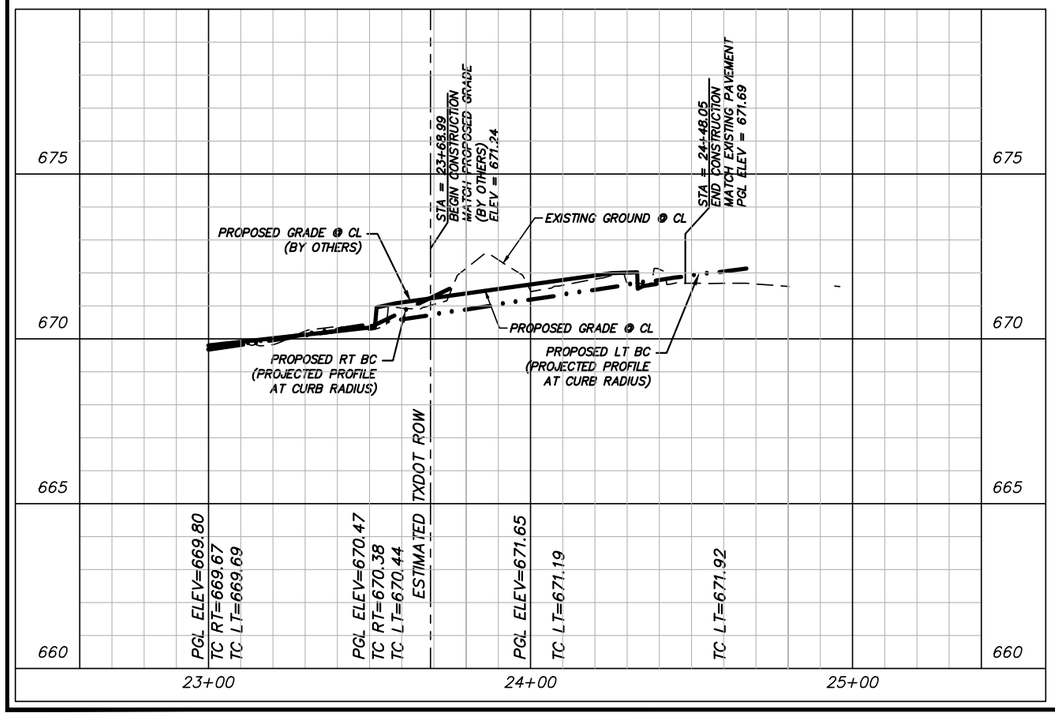
PLOTTED BY: Thuy-Nhu Nguyen
PLOTTED WITH: _Adobe PDF.pc3

EXHIBIT B





PAVING LEGEND

- PROPOSED CONCRETE DRIVEWAY
- PROPOSED CONCRETE SIDEWALK
- PROPOSED SAWCUT
- EXISTING TRAFFIC FLOW DIRECTION
- PROPOSED TRAFFIC FLOW DIRECTION

GRAPHIC SCALE IN FEET HORIZONTAL (40 0 40 80)

GRAPHIC SCALE IN FEET VERTICAL (4 0 4 8)

NOTES:

1. FULL-DEPTH SAW CUT ALL JOINTS MADE FOR REMOVAL OF EXISTING STATE FACILITIES.
2. ALL DIMENSIONS ARE TO EDGE OF PAVEMENT, FRONT OF CURB, ROW, AND KEY POINTS OF GEOMETRY, UNLESS OTHERWISE STATED.
3. ALL JOINTS AT PROPOSED AND EXISTING PAVEMENT CONNECTIONS ARE TO BE SEALED WITH A SEAL COAT.
4. EXPANSION JOINT (COLD JOINT) SHALL BE INSTALLED AT THE STATE RIGHT-OF-WAY LINE.

DRIVEWAY 1 GEOMETRY POINTS
(REF. ℄ E DANIELDALE RD)

POINT NO.	DESCRIPTION	STA OFFSET	NORTHING EASTING	NOTE
1	PI	23+96.49 30.98 L	6917897.48 2460998.85	MATCH PROPOSED RD (BY OTHERS)
2	PC	24+44.80 30.99 L	6917898.14 2461047.15	
3	PT	24+67.41 41.28 L	6917908.74 2461069.62	
4	PI	24+81.40 57.33 L	6917924.98 2461083.39	PROPOSED SAWCUT; MATCH EXISTING
5	PI	23+76.07 7.98 L	6917874.20 2460978.74	MATCH PROPOSED RD (BY OTHERS)
6	PC	24+25.25 7.98 L	6917874.87 2461027.92	
7	PT	24+25.26 8.02 R	6917858.87 2461028.14	
8	PI	23+61.86 8.03 R	6917858.00 2460964.75	MATCH PROPOSED RD (BY OTHERS)
9	PI	23+41.44 31.03 R	6917834.73 2460944.65	MATCH PROPOSED RD (BY OTHERS)
10	PC	23+51.94 31.03 R	6917834.87 2460955.14	
11	PT	23+75.00 79.33 R	6917786.88 2460978.86	
12	PI	23+65.14 92.13 R	6917773.95 2460969.18	PROPOSED SAWCUT; MATCH EXISTING

STATE OF TEXAS
THUY-NHU N. NGUYEN
135427
LICENSED PROFESSIONAL ENGINEER
11/13/2020

DATE	BY	REV.	REVISION

DUNAWAY
TX REGISTERED ENGINEERING FIRM F-1144
550 Bailey Avenue
Suite 400
Fort Worth, TX 76107
817-335-1121

Texas Department of Transportation
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DRIVEWAY PERMIT PLANS

ROADWAY PLAN & PROFILE

FED.RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TX				US-67
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
DAL	DALLAS	NA	NA	NA	4

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PLOTTED BY: Thuy-Nhu Nguyen

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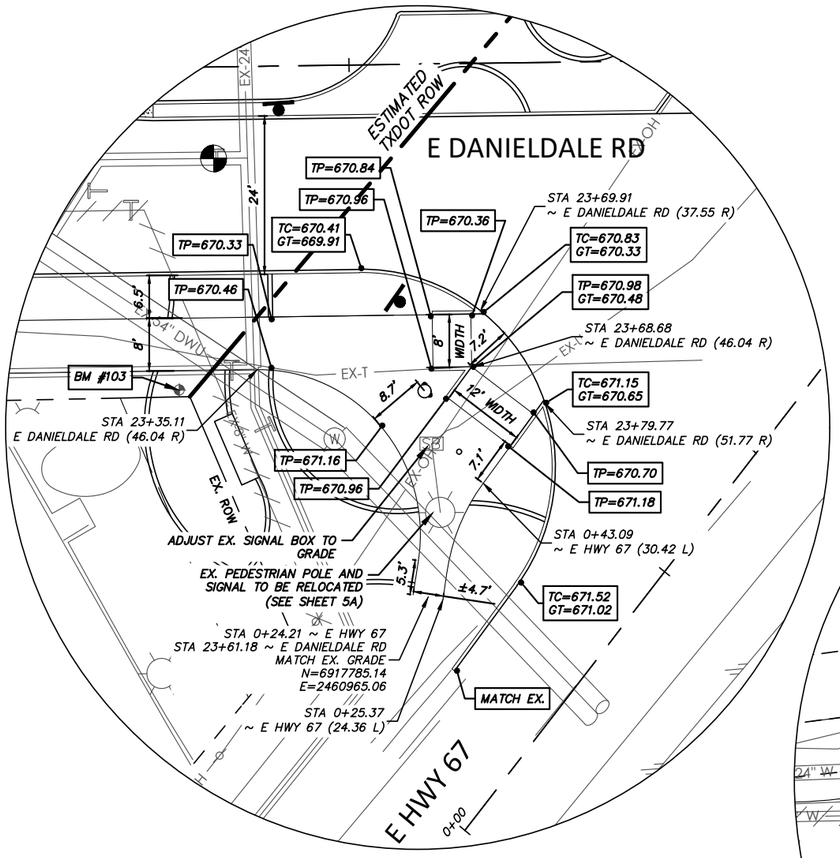
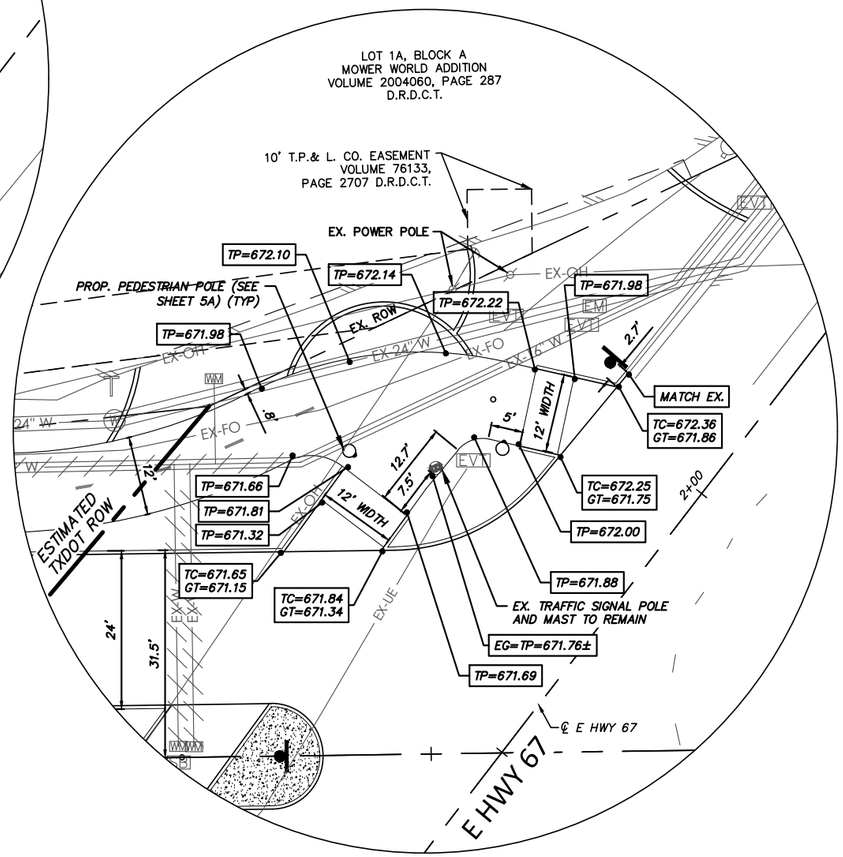


SW CORNER
E DANIELDALE RD & E HWY 67
1" = 10'



NW CORNER
E DANIELDALE RD & E HWY 67
1" = 10'

SPOT SHOT LEGEND

GT	GUTTER
TC	TOP OF CURB
TP	TOP OF PAVEMENT
EG	EXISTING GRADE

WARNING TO CONTRACTOR:

CALL 811 (TEXAS 811) OR OTHER UTILITY LOCATING SERVICES 48 HOURS PRIOR TO CONSTRUCTION ACTIVITY. DUNAWAY ASSOC., L.P. IS NOT RESPONSIBLE FOR KNOWING ALL EXISTING UTILITIES OR DEPICTING EXACT LOCATIONS OF UTILITIES ON DRAWINGS.

UTILITY NOTES:
1. THE EXISTING UTILITIES SHOWN ON THE PLANS WERE COMPILED FROM VARIOUS SOURCES AND ARE INTENDED TO SHOW THE GENERAL EXISTENCE AND LOCATION OF UTILITIES IN THE AREA OF CONSTRUCTION.
2. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THE UTILITY INFORMATION SHOWN ON THE PLANS.
3. THE CONTRACTOR SHALL CONTACT A UTILITY LOCATING SERVICE 48 HOURS PRIOR TO ANY CONSTRUCTION ACTIVITY. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES AND DETERMINE IF THERE ARE ANY CONFLICTS WITH THE PROPOSED FACILITIES. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY WHEN CONFLICTS WITH EXISTING UTILITIES ARE DISCOVERED.

NOTES:

1. DIMENSIONS ARE FROM BACK OF CURB, EDGE OF PAVEMENT, AND OTHER KEY POINTS OF GEOMETRY, UNLESS OTHERWISE STATED.
2. THE TRAIL WIDTH ON THE NORTH SIDE OF THE ROADWAY IS 12-FT WIDE. THE TRAIL WIDTH ON THE SOUTH SIDE OF THE ROADWAY IS 8-FT WIDE.

10 0 10 20
GRAPHIC SCALE IN FEET
HORIZONTAL

STATE OF TEXAS
THUY-NHU N. NGUYEN
135427
LICENSED
PROFESSIONAL ENGINEER
11/13/2020

DATE	BY	REV	REVISION

DUNAWAY
TX REGISTERED ENGINEERING FIRM F-1144
550 Bailey Avenue
Suite 400
Fort Worth, TX 76107
817-335-1121

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DRIVEWAY PERMIT PLANS

GRADING PLAN

FED.RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TX				US-67
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
DAL	DALLAS	NA	NA	NA	4A

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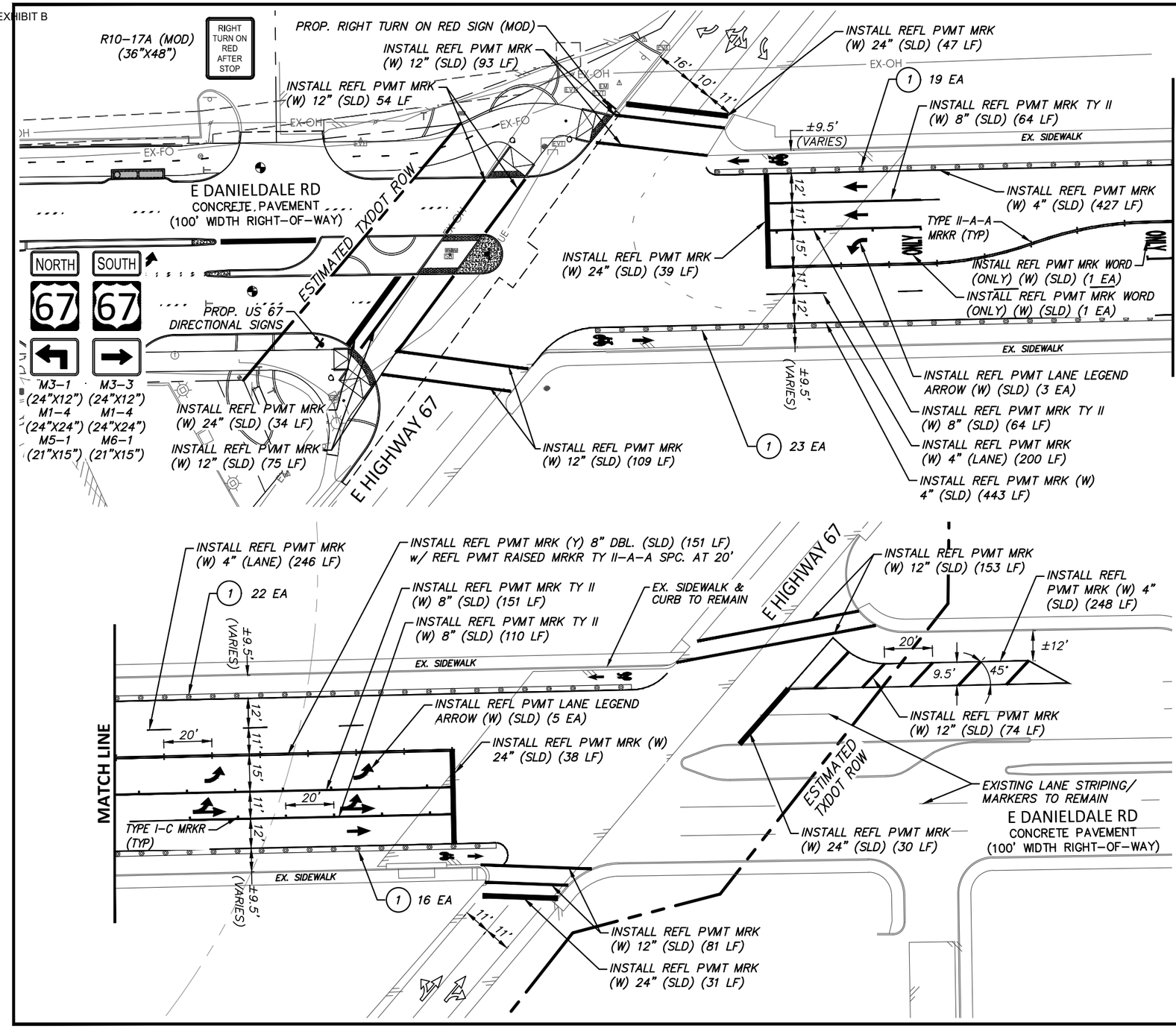
PLOTTED BY: Thuy-Nhu Nguyen
PLOTTED WITH: _Adobe PDF.pc3

EXHIBIT B

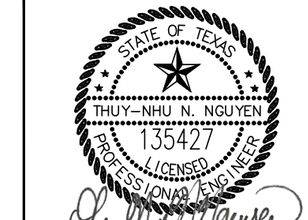


GRAPHIC SCALE IN FEET
HORIZONTAL

1 "TUFF CURB XLP" HIGH PERFORMANCE TRAFFIC BIKE LANE DELINEATOR (W) 42" HEIGHT (IMPACT RECOVERY SYSTEMS, OR APPROVED EQUAL) @ 10' SPACING. TUFF CURB TO BE INSTALLED BY EPOXY OR OTHER METHOD THAT DOES NOT INCLUDE DRILLING, ANCHORS, SCREWS, OR ANY METHOD THAT MAY CAUSE DAMAGE TO THE EXISTING BRIDGE DECK.

NOTE:

CONTRACTOR SHALL ELIMINATE EXISTING PAVEMENT MARKINGS THAT CONFLICT WITH NEW MARKINGS. THIS SHALL BE CONSIDERED SUBSIDIARY TO ITEM 666.



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Fort Worth, TX 76107
817-335-1121

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DRIVEWAY PERMIT PLANS

SIGNAGE & PAVEMENT MARKING PLAN

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6	TX				US-67
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
DAL	DALLAS	NA	NA	NA	5

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PLOTTED BY: Thuy-Nhu Nguyen

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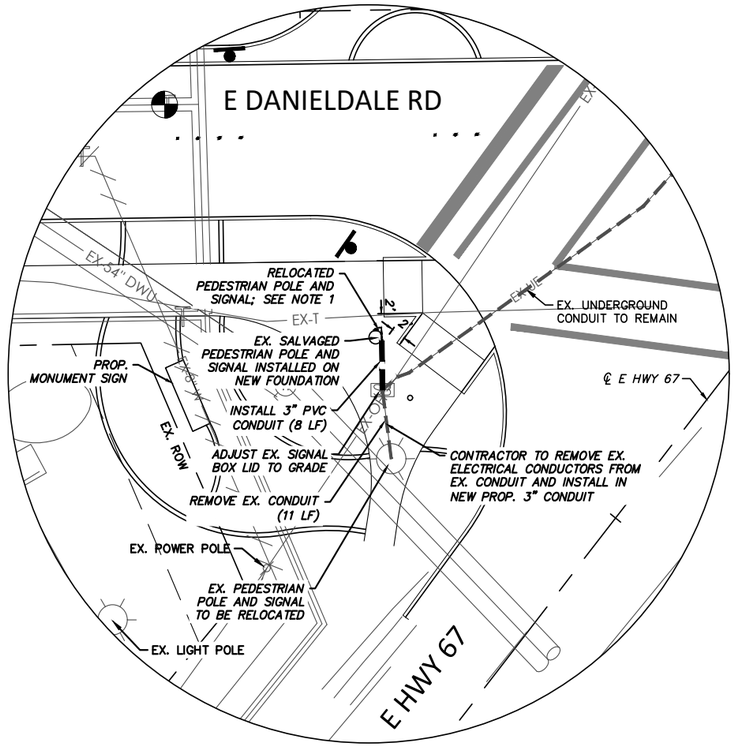
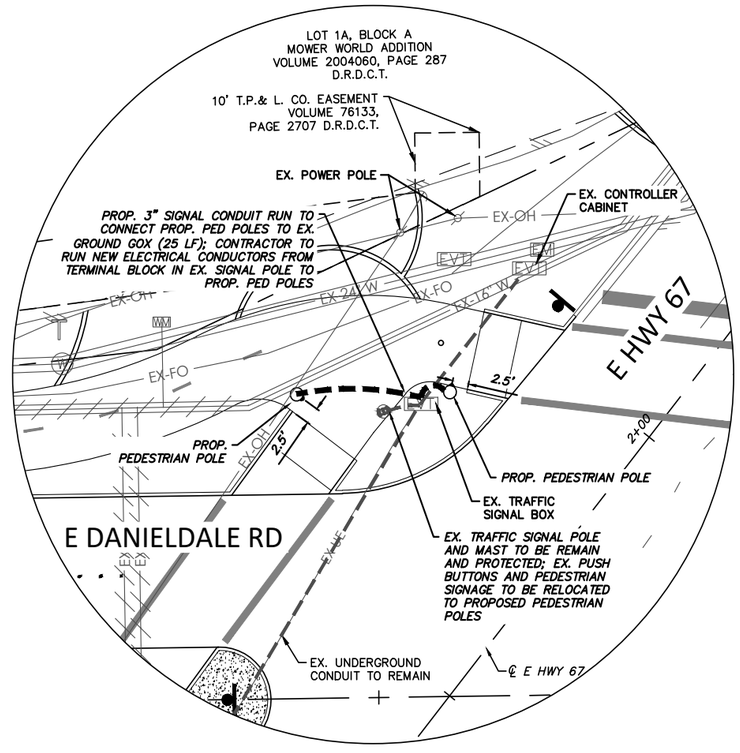
EXHIBIT B



INSET 1
1" = 10'



INSET 2
1" = 10'

WARNING TO CONTRACTOR:

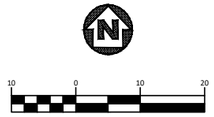
CALL 811 (TEXAS 811) OR OTHER UTILITY LOCATING SERVICES 48 HOURS PRIOR TO CONSTRUCTION ACTIVITY. DUNAWAY ASSOC., L.P. IS NOT RESPONSIBLE FOR KNOWING ALL EXISTING UTILITIES OR DEPICTING EXACT LOCATIONS OF UTILITIES ON DRAWINGS.

UTILITY NOTES:
1. THE EXISTING UTILITIES SHOWN ON THE PLANS WERE COMPILED FROM VARIOUS SOURCES AND ARE INTENDED TO SHOW THE GENERAL EXISTENCE AND LOCATION OF UTILITIES IN THE AREA OF CONSTRUCTION.
2. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THE UTILITY INFORMATION SHOWN ON THE PLANS.
3. THE CONTRACTOR SHALL CONTACT A UTILITY LOCATING SERVICE 48 HOURS PRIOR TO ANY CONSTRUCTION ACTIVITY. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES AND DETERMINE IF THERE ARE ANY CONFLICTS WITH THE PROPOSED FACILITIES. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY WHEN CONFLICTS WITH EXISTING UTILITIES ARE DISCOVERED.

NOTE:

1. CONTRACTOR TO REARRANGE EXISTING PUSH BUTTON AND SIGNAGE TO APPROPRIATE TRAVEL DIRECTION.

2. CONTRACTOR MUST INSTALL PROPOSED IMPROVEMENTS WITHIN TXDOT R.O.W. PER APPROVED TXDOT PERMIT.



GRAPHIC SCALE IN FEET
HORIZONTAL

STATE OF TEXAS
THUY-NHU N. NGUYEN
135427
LICENSED
PROFESSIONAL ENGINEER
11/13/2020

DATE	BY	REV.	REVISION

DUNAWAY
TX REGISTERED ENGINEERING FIRM F-11744
550 Bailey Avenue
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Fort Worth, TX 76107
817-335-1121

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DRIVEWAY PERMIT PLANS

PEDESTRIAN SIGNAL PLAN

FED.RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TX				US-67
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
DAL	DALLAS	NA	NA	NA	5A

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FILENAME: SGNL-PL.dwg
PLOTTED BY: Thuy-Nhu Nguyen

PLOTTED WITH: _Adobe PDF.pc3

EXHIBIT B

SUMMARY OF SMALL SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) POST TYPE: FRP = Fiberglass; TWT = Thin-Wall; 10BWG = 10 BWG; S80 = Sch 80	POSTS: 1 or 2	ANCHOR TYPE: UA=Universal Conc; UB=Universal Bolt; SA=Slipbase-Conc; SB=Slipbase-Bolt; WS=Wedge Steel; WP=Wedge Plastic	MOUNTING DESIGNATION: PREFABRICATED: P = "Plain"; T = "T"; U = "U"	MOUNTING DESIGNATION: 1EXT or 2EXT = # of Ext; BM = Extruded Wind Beam; WC = 1.12 #/ft Wing Channel; EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE: TY N; TY S
6	1	R10-17a	RIGH TURN ON RED AFTER STOP	36"x48"	X		10BWG	1	SA	P		
	2	M3-1	NORTH	24"x12"	X		10BWG	1	SA	P		
	3	M1-4	67	24"x24"	X		10BWG	1	SA	P		
	4	M5-1	LEFT TURN ARROW	21"x15"	X		10BWG	1	SA	P		
	5	M3-3	SOUTH	24"x12"	X		10BWG	1	SA	P		
	6	M1-4	67	24"x24"	X		10BWG	1	SA	P		
	7	M6-1	RIGHT TURN ARROW	21"x15"	X		10BWG	1	SA	P		

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
Greater than 15	0.125"

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.

http://www.txdot.gov/

NOTE:

1. Sign supports shall be located as shown on the plans, except that the Engineer may shift the sign supports, within design guidelines, where necessary to secure a more desirable location or to avoid conflict with utilities. Unless otherwise shown on the plans, the Contractor shall stake and the Engineer will verify all sign support locations.
2. For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS)Standard Sheet.
3. For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD(GEN).

Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

FILE: sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS				
4-16	DIST	COUNTY		SHEET NO.
8-16	DAL	DALLAS		6

18

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FILE:

EXHIBIT B

BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

1. The Barricade and Construction Standard Sheets (BC sheets) are intended to show typical examples for placement of temporary traffic control devices, construction pavement markings, and typical work zone signs. The information contained in these sheets meet or exceed the requirements shown in the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).

2. The development and design of the Traffic Control Plan (TCP) is the responsibility of the Engineer.

3. The Contractor may propose changes to the TCP that are signed and sealed by a licensed professional engineer for approval. The Engineer may develop, sign and seal Contractor proposed changes.

4. The Contractor is responsible for installing and maintaining the traffic control devices as shown in the plans. The Contractor may not move or change the approximate location of any device without the approval of the Engineer.

5. Geometric design of lane shifts and detours should, when possible, meet the applicable design criteria contained in manuals such as the American Association of State Highway and Transportation Officials (AASHTO), "A Policy on Geometric Design of Highways and Streets," the TxDOT "Roadway Design Manual" or engineering judgment.

6. When projects abut, the Engineer(s) may omit the END ROAD WORK, TRAFFIC FINES DOUBLE, and other advance warning signs if the signing would be redundant and the work areas appear continuous to the motorists. If the adjacent project is completed first, the Contractor shall erect the necessary warning signs as shown on these sheets, the TCP sheets or as directed by the Engineer. The BEGIN ROAD WORK NEXT X MILES sign shall be revised to show appropriate work zone distance.

7. The Engineer may require duplicate warning signs on the median side of divided highways where median width will permit and traffic volumes justify the signing.

8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.

9. The temporary traffic control devices shown in the illustrations of the BC sheets are examples. As necessary, the Engineer will determine the most appropriate traffic control devices to be used.

10. As shown on BC(2), the OBEY WARNING SIGNS STATE LAW sign, STAY ALERT TALK OR TEXT LATER (see Sign Detail G20-10T) and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the CSJ limits. However, the TRAFFIC FINES DOUBLE sign will not be required on projects consisting solely of mobile operation work, such as striping or milling edgeline rumble strips. The BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits.

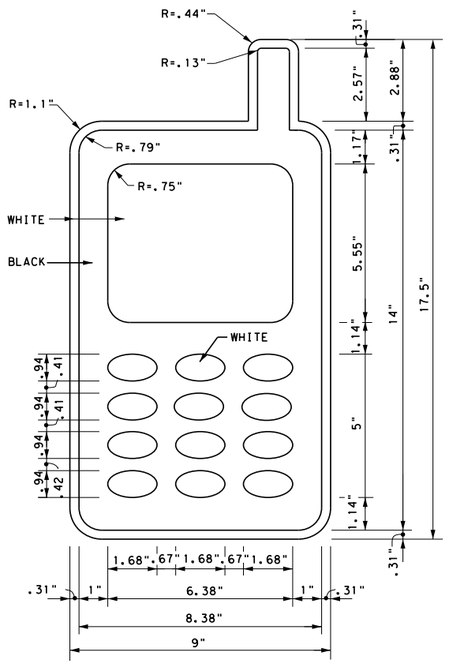
11. Except for devices required by Note 10, traffic control devices should be in place only while work is actually in progress or a definite need exists.

12. The Engineer has the final decision on the location of all traffic control devices.

13. Inactive equipment and work vehicles, including workers' private vehicles must be parked away from travel lanes. They should be as close to the right-of-way line as possible, or located behind a barrier or guardrail, or as approved by the Engineer.

WORKER SAFETY APPAREL NOTES:

1. Workers on foot who are exposed to traffic or to construction equipment within the right-of-way shall wear high-visibility safety apparel meeting the requirements of ISEA "American National Standard for High-Visibility Apparel," or equivalent revisions, and labeled as ANSI 107-2004 standard performance for Class 2 or 3 risk exposure. Class 3 garments should be considered for high traffic volume work areas or night time work.



3.0" Radius, 1.25" Border, 0.75" Indent, Black on Yellow; [STAY ALERT] Font: D
3.0" Radius, 1.25" Border, 0.75" Indent, Black on Orange; [TALK OR TEXT LATER] Font: C specified length;

SIGN DETAIL (G20-10T)

Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be found on-line at the web address given below or by contacting:

Texas Department of Transportation
Traffic Operations Division - TE
Phone (512) 416-3118

THE DOCUMENTS BELOW CAN BE FOUND ON-LINE AT http://www.txdot.gov
COMPLIANT WORK ZONE TRAFFIC CONTROL DEVICES LIST (CWZTCD)
DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS)
MATERIAL PRODUCER LIST (MPL)
ROADWAY DESIGN MANUAL - SEE "MANUALS (ONLINE MANUALS)"
STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS (SHSD)
TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD)
TRAFFIC ENGINEERING STANDARD SHEETS

Texas Department of Transportation — Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

BC(1)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-03 5-10 8-14 9-07 7-13	DIST	COUNTY		SHEET NO.
	DAL	DALLAS		7

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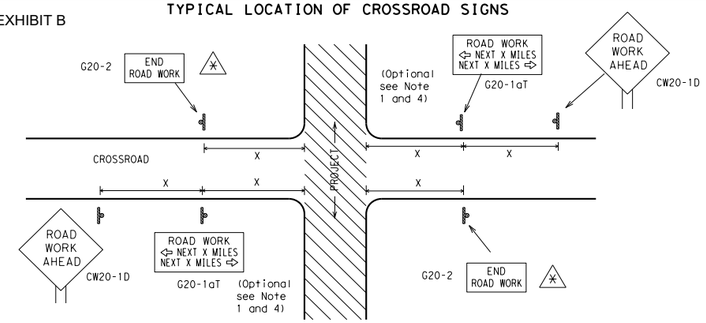
EXHIBIT B

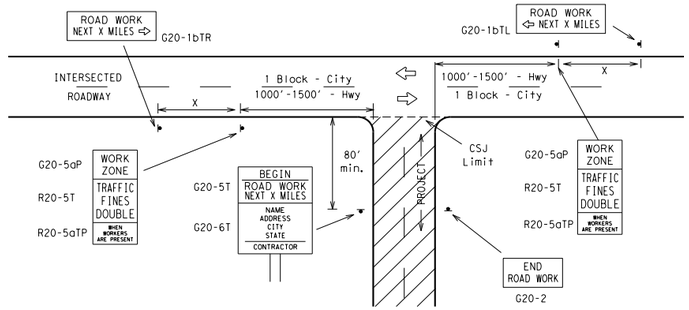
TYPICAL LOCATION OF CROSSROAD SIGNS



May be mounted on back of "ROAD WORK AHEAD"(CW20-1D) sign with approval of Engineer. (See note 2 below)

1. The typical minimum signing on a crossroad approach should be a "ROAD WORK AHEAD" (CW20-1D)sign and a (G20-2) "END ROAD WORK" sign, unless noted otherwise in plans.
2. The Engineer may use the reduced size 36" x 36" ROAD WORK AHEAD (CW20-1D) sign mounted back to back with the reduced size 36" x 18" "END ROAD WORK"(G20-2) sign on low volume crossroads (see Note 4 under "Typical Construction Warning Sign Size and Spacing"). See the "Standard Highway Sign Designs for Texas" manual for sign details. The Engineer may omit the advance warning signs on low volume crossroads. The Engineer will determine whether a road is low volume. This information shall be shown in the plans.
3. Based on existing field conditions, the Engineer/Inspector may require additional signs such as FLAGGER AHEAD, LOOSE GRAVEL, or other appropriate signs. When additional signs are required, these signs will be considered part of the minimum requirements. The Engineer/Inspector will determine the proper location and spacing of any sign not shown on the BC sheets, Traffic Control Plan sheets or the Work Zone Standard Sheets.
4. The "ROAD WORK NEXT X MILES"(G20-1aT)sign shall be required at high volume crossroads to advise motorists of the length of construction in either direction from the intersection. The Engineer will determine whether a roadway is considered high volume.
5. Additional traffic control devices may be shown elsewhere in the plans for higher volume crossroads.
6. When work occurs in the intersection area, appropriate traffic control devices, as shown elsewhere in the plans or as determined by the Engineer/Inspector, shall be in place.

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

1. The Engineer will determine the types and location of any additional traffic control devices, such as a flagger and accompanying signs, or other signs, that should be used when work is being performed at or near an intersection.
2. If construction closes the road at a T-intersection the Contractor shall place the "CONTRACTOR NAME"(G20-6T) sign behind the Type 3 Barricades for the road closure (see BC(10) also). The "ROAD WORK NEXT X MILES" left arrow(G20-1bTL) and "ROAD WORK NEXT X MILES" right arrow (G20-1bTR)" signs shall be replaced by the detour signing called for in the plans.

TYPICAL CONSTRUCTION WARNING SIGN SIZE AND SPACING[1,5,6]

SIZE

Sign Number or Series	Conventional Road	Expressway/ Freeway
CW20[4], CW21, CW22, CW23, CW25	48" x 48"	48" x 48"
CW1, CW2, CW7, CW8, CW9, CW11, CW14	36" x 36"	48" x 48"
CW3, CW4, CW5, CW6, CW8-3, CW10, CW12	48" x 48"	48" x 48"

SPACING

Posted Speed	Sign Spacing "X" △
MPH	Feet (Apprx.)
30	120
35	160
40	240
45	320
50	400
55	500[2]
60	600[2]
65	700[2]
70	800[2]
75	900[2]
80	1000[2]
✱	✱ [3]

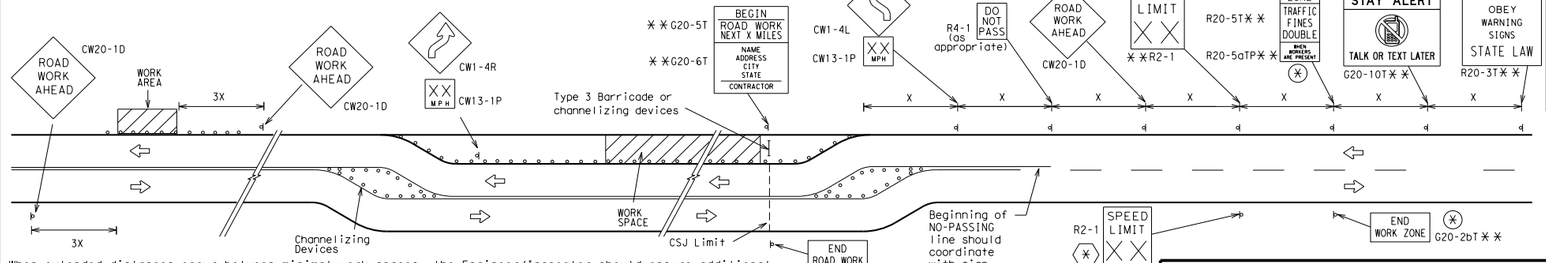
✱ For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

△ Minimum distance from work area to first Advance Warning sign nearest the work area and/or distance between each additional sign.

GENERAL NOTES

1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D)signs may be used on low volume crossroads at the discretion of the Engineer. See Note 2 under "Typical Location of Crossroad Signs".
5. Only diamond shaped warning sign sizes are indicated.
6. See sign size listing in "TMUTCD", Sign Appendix or the "Standard Highway Sign Designs for Texas" manual for complete list of available sign design sizes.

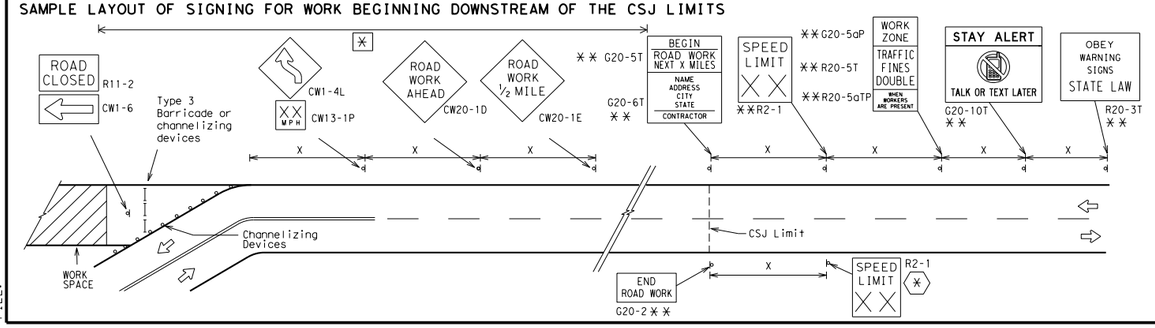
WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS



When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD"(CW20-1D)signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing of signs and channelizing devices.

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING DOWNSTREAM OF THE CSJ LIMITS



NOTES

The Contractor shall determine the appropriate distance to be placed on the G20-1 series signs and "BEGIN ROAD WORK NEXT X MILES"(G20-5T)sign for each specific project. This distance shall replace the "X" and shall be rounded to the nearest whole mile with the approval of the Engineer. No decimals shall be used.

(✱) The "BEGIN WORK ZONE"(G20-9TP) and "END WORK ZONE" (G20-2bT) shall be used as shown on the sample layout when advance signs are required outside the CSJ Limits. They inform the motorist of entering or leaving a part of the work zone lying outside the CSJ Limits where traffic fines may double if workers are present.

✱✱ Required CSJ Limit signing. See Note 10 on BC(1). TRAFFIC FINES DOUBLE signs will not be required on projects consisting solely of mobile operations work.

✱ Area for placement of "ROAD WORK AHEAD" (CW20-1D)sign and other signs or devices as called for on the Traffic Control Plan.

(✱) Contractor will install a regulatory speed limit sign at the end of the work zone.

LEGEND

⟼⟻	Type 3 Barricade
○ ○ ○	Channelizing Devices
▬	Sign
X	See Typical Construction Warning Sign Size and Spacing chart or the TMUTCD for sign spacing requirements.

SHEET 2 OF 12

Texas Department of Transportation | Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS				
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13	DAL	DALLAS		8

96

DATE:
FILE:

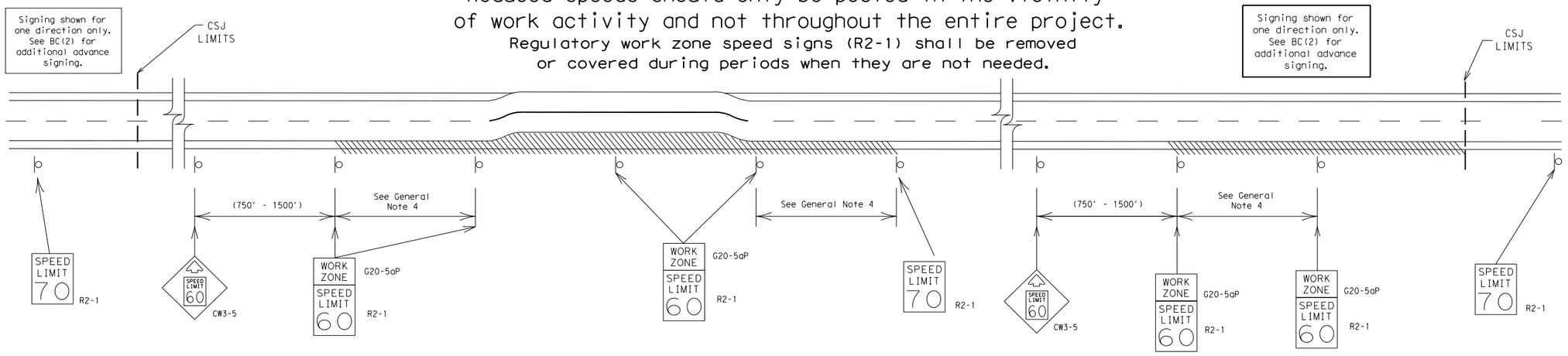
EXHIBIT B

TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

Work zone speed limits shall be regulatory, established in accordance with the "Procedures for Establishing Speed Zones," and approved by the Texas Transportation Commission, or by City Ordinance when within Incorporated City Limits.

Reduced speeds should only be posted in the vicinity of work activity and not throughout the entire project.

Regulatory work zone speed signs (R2-1) shall be removed or covered during periods when they are not needed.



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit should be included on the design of the traffic control plans when restricted geometrics with a lower design speed are present in the work zone and modification of the geometrics to a higher design speed is not feasible.

Long/Intermediate Term Work Zone Speed Limit signs, when approved as described above, should be posted and visible to the motorist when work activity is present. Work activity may also be defined as a change in the roadway that requires a reduced speed for motorists to safely negotiate the work area, including:

a) rough road or damaged pavement surface
b) substantial alteration of roadway geometrics (diversions)
c) construction detours
d) grade
e) width
f) other conditions readily apparent to the driver

As long as any of these conditions exist, the work zone speed limit signs should remain in place.

SHORT TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit may be included on the design of the traffic control plans when workers or equipment are not behind concrete barrier, when work activity is within 10 feet of the traveled way or actually in the travelled way.

Short Term Work Zone Speed Limit signs should be posted and visible to the motorists only when work activity is present. When work activity is not present, signs shall be removed or covered.
(See Removing or Covering on BC(4)).

GENERAL NOTES

1. Regulatory work zone speed limits should be used only for sections of construction projects where speed control is of major importance.
2. Regulatory work zone speed limit signs shall be placed on supports at a 7 foot minimum mounting height.
3. Speed zone signs are illustrated for one direction of travel and are normally posted for each direction of travel.
4. Frequency of work zone speed limit signs should be:
   40 mph and greater 0.2 to 2 miles
   35 mph and less 0.2 to 1 mile
5. Regulatory speed limit signs shall have black legend and border on a white reflective background (See "Reflective Sheeting" on BC(4)).
6. Fabrication, erection and maintenance of the"ADVANCE SPEED LIMIT"(CW3-5)sign, "WORK ZONE"(G20-5aP) plaque and the "SPEED LIMIT"(R2-1)signs shall not be paid for directly, but shall be considered subsidiary to Item 502.
7. Turning signs from view, laying signs over or down will not be allowed, unless as otherwise noted under "REMOVING OR COVERING" on BC(4).
8. Techniques that may help reduce traffic speeds include but are not limited to:
   A. Law enforcement.
   B. Flagger stationed next to sign.
   C. Portable changeable message sign (PCMS).
   D. Low-power (drone) radar transmitter.
   E. Speed monitor trailers or signs.
9. Speeds shown on details above are for illustration only. Work Zone Speed Limits should only be posted as approved for each project.
10. For more specific guidance concerning the type of work, work zone conditions and factors impacting allowable regulatory construction speed zone reduction see TxDOT form #1204 in the TxDOT e-form system.

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Texas Department of Transportation | Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC(3)-14

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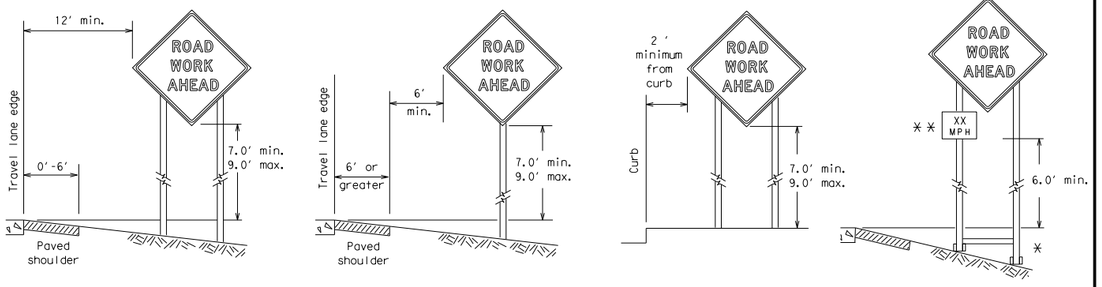
EXHIBIT B

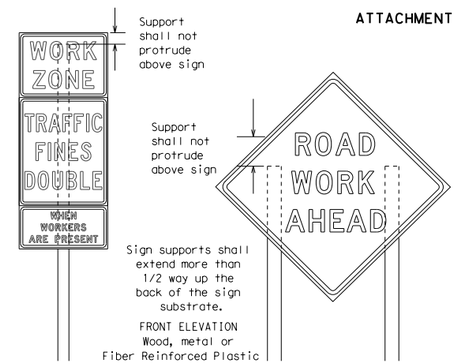
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS

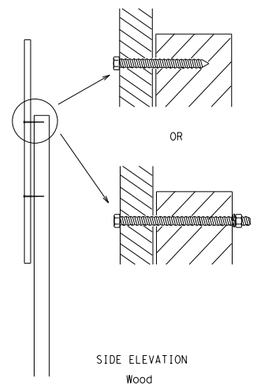


⁎ When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

⁎⁎ When plaques are placed on dual-leg supports, they should be attached to the upright nearest the travel lane. Supplemental plaques (advisory or distance) should not cover the surface of the parent sign.

ATTACHMENT FOR SIGN SUPPORTS





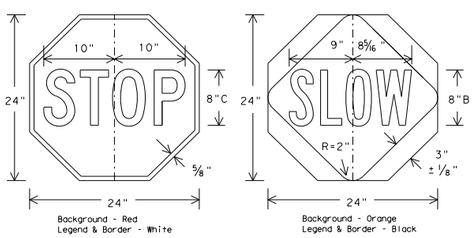
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

Nails shall NOT be allowed. Each sign shall be attached directly to the sign support. Multiple signs shall not be joined or spliced by any means. Wood supports shall not be extended or repaired by splicing or other means.

Splicing embedded perforated square metal tubing in order to extend post height will only be allowed when the splice is made using four bolts, two above and two below the spice point. Splice must be located entirely behind the sign substrate, not near the base of the support. Splice insert lengths should be at least 5 times nominal post size, centered on the splice and of at least the same gauge material.

STOP/SLOW PADDLES

1. STOP/SLOW paddles are the primary method to control traffic by flaggers. The STOP/SLOW paddle size should be 24" x 24" as detailed below.
2. When used at night, the STOP/SLOW paddle shall be retroreflectorized.
3. STOP/SLOW paddles may be attached to a staff with a minimum length of 6′ to the bottom of the sign.
4. Any lights incorporated into the STOP or SLOW paddle faces shall only be as specifically described in Section 6E.03 Hand Signaling Devices in the TMUTCD.



CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

1. Permanent signs are used to give notice of traffic laws or regulations, call attention to conditions that are potentially hazardous to traffic operations, show route designations, destinations, directions, distances, services, points of interest, and other geographical, recreational, or cultural information. Drivers proceeding through a work zone need the same, if not better route guidance as normally installed on a roadway without construction.
2. When permanent regulatory or warning signs conflict with work zone conditions, remove or cover the permanent signs until the permanent sign message matches the roadway condition.
3. When existing permanent signs are moved and relocated due to construction purposes, they shall be visible to motorists at all times.
4. If existing signs are to be relocated on their original supports, they shall be installed on crashworthy bases as shown on the SMD Standard sheets. The signs shall meet the required mounting heights shown on the BC Sheets or the SMD Standards. This work should be paid for under the appropriate pay item for relocating existing signs.
5. If permanent signs are to be removed and relocated using temporary supports, the Contractor shall use crashworthy supports as shown on the BC sheets or the CWZTCD. The signs shall meet the required mounting heights shown on the BC Sheets or the SMD Standards during construction. This work should be paid for under the appropriate pay item for relocating existing signs.
6. Any sign or traffic control device that is struck or damaged by the Contractor or his/her construction equipment shall be replaced as soon as possible by the Contractor to ensure proper guidance for the motorists. This will be subsidiary to Item 502.

GENERAL NOTES FOR WORK ZONE SIGNS

1. Contractor shall install and maintain signs in a straight and plumb condition and/or as directed by the Engineer.
2. Wooden sign posts shall be painted white.
3. Barricades shall NOT be used as sign supports.
4. All signs shall be installed in accordance with the plans or as directed by the Engineer. Signs shall be used to regulate, warn, and guide the traveling public safely through the work zone.
5. The Contractor may furnish either the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD). The Engineer/Inspector may require the Contractor to furnish other work zone signs that are shown in the TMUTCD but may have been omitted from the plans. Any variation in the plans shall be documented by written agreement between the Engineer and the Contractor's Responsible Person. All changes must be documented in writing before being implemented. This can include documenting the changes in the Inspector's TxDOT diary and having both the Inspector and Contractor initial and date the agreed upon changes.
6. The Contractor shall furnish sign supports listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD). The Contractor shall install the sign support in accordance with the manufacturer's recommendations. If there is a question regarding installation procedures, the Contractor shall furnish the Engineer a copy of the manufacturer's installation recommendations so the Engineer can verify the correct procedures are being followed.
7. The Contractor is responsible for installing signs on approved supports and replacing signs with damaged or cracked substrates and/or damaged or marred reflective sheeting as directed by the Engineer/Inspector.
8. Identification markings may be shown only on the back of the sign substrate. The maximum height of letters and/or company logos used for identification shall be 1 inch.
9. The Contractor shall replace damaged wood posts. New or damaged wood sign posts shall not be spliced.

DURATION OF WORK (as defined by the "Texas Manual on Uniform Traffic Control Devices" Part 6)

1. The types of sign supports, sign mounting height,the size of signs, and the type of sign substrates can vary based on the type of work being performed. The Engineer is responsible for selecting the appropriate size sign for the type of work being performed. The Contractor is responsible for ensuring the sign support, sign mounting height and substrate meets manufacturer's recommendations in regard to crashworthiness and duration of work requirements.
   a. Long-term stationary - work that occupies a location more than 3 days.
   b. Intermediate-term stationary - work that occupies a location more than one daylight period up to 3 days, or nighttime work lasting more than one hour.
   c. Short-term stationary - daytime work that occupies a location for more than 1 hour in a single daylight period.
   d. Short, duration - work that occupies a location up to 1 hour.
   e. Mobile - work that moves continuously or intermittently (stopping for up to approximately 15 minutes.)

SIGN MOUNTING HEIGHT

1. The bottom of Long-term/Intermediate-term signs shall be at least 7 feet, but not more than 9 feet, above the paved surface, except as shown for supplemental plaques mounted below other signs.
2. The bottom of Short-term/Short Duration signs shall be a minimum of 1 foot above the pavement surface but no more than 2 feet above the ground.
3. Long-term/Intermediate-term Signs may be used in lieu of Short-term/Short Duration signing.
4. Short-term/Short Duration signs shall be used only during daylight and shall be removed at the end of the workday or raised to appropriate Long-term/Intermediate sign height.
5. Regulatory signs shall be mounted at least 7 feet, but not more than 9 feet, above the paved surface regardless of work duration.

SIZE OF SIGNS

1. The Contractor shall furnish the sign sizes shown on BC (2) unless otherwise shown in the plans or as directed by the Engineer.

SIGN SUBSTRATES

1. The Contractor shall ensure the sign substrate is installed in accordance with the manufacturer's recommendations for the type of sign support that is being used. The CWZTCD lists each substrate that can be used on the different types and models of sign supports.
2. "Mesh" type materials are NOT an approved sign substrate, regardless of the tightness of the weave.
3. All wooden individual sign panels fabricated from 2 or more pieces shall have one or more plywood cleat, 1/2" thick by 6" wide, fastened to the back of the sign and extending fully across the sign. The cleat shall be attached to the back of the sign using wood screws that do not penetrate the face of the sign panel. The screws shall be placed on both sides of the splice and spaced at 6" centers. The Engineer may approve other methods of splicing the sign face.

REFLECTIVE SHEETING

1. All signs shall be retroreflective and constructed of sheeting meeting the color and retro-reflectivity requirements of DMS-8300 for rigid signs or DMS-8310 for roll-up signs. The web address for DMS specifications is shown on BC(1).
2. White sheeting, meeting the requirements of DMS-8300 Type A, shall be used for signs with a white background.
3. Orange sheeting, meeting the requirements of DMS-8300 Type B_{FL} or Type C_{FL}, shall be used for rigid signs with orange backgrounds.

SIGN LETTERS

1. All sign letters and numbers shall be clear, and open rounded type uppercase alphabet letters as approved by the Federal Highway Administration (FHWA) and as published in the "Standard Highway Sign Design for Texas" manual. Signs, letters and numbers shall be of first class workmanship in accordance with Department Standards and Specifications.

REMOVING OR COVERING

1. When sign messages may be confusing or do not apply, the signs shall be removed or completely covered.
2. Long-term stationary or intermediate stationary signs installed on square metal tubing may be turned away from traffic 90 degrees when the sign message is not applicable. This technique may not be used for signs installed in the median of divided highways or near any intersections where the sign may be seen from approaching traffic.
3. Signs installed on wooden skids shall not be turned at 90 degree angles to the roadway. These signs should be removed or completely covered when not required.
4. When signs are covered, the material used shall be opaque, such as heavy mil black plastic, or other materials which will cover the entire sign face and maintain their opaque properties under automobile headlights at night, without damaging the sign sheeting.
5. Burlap shall NOT be used to cover signs.
6. Duct tape or other adhesive material shall NOT be affixed to a sign face.
7. Signs and anchor stubs shall be removed and holes backfilled upon completion of work.

SIGN SUPPORT WEIGHTS

1. Where sign supports require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand should be used.
2. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
3. Rock, concrete, iron, steel or other solid objects shall not be permitted for use as sign support weights.
4. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs.
5. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall NOT be used.
6. Rubber ballasts designed for channelizing devices should not be used for ballast on portable sign supports. Sign supports designed and manufactured with rubber bases may be used when shown on the CWZTCD list.
7. Sandbags shall only be placed along or laid over the base supports of the traffic control device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners. Sandbags shall be placed along the length of the skids to weigh down the sign support.
8. Sandbags shall NOT be placed under the skid and shall not be used to level sign supports placed on slopes.

FLAGS ON SIGNS

1. Flags may be used to draw attention to warning signs. When used the flag shall be 16 inches square or larger and shall be orange or fluorescent red-orange in color. Flags shall not be allowed to cover any portion of the sign face.

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Texas Department of Transportation — Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-14

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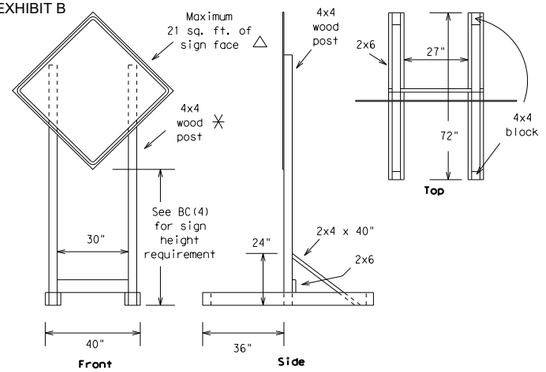
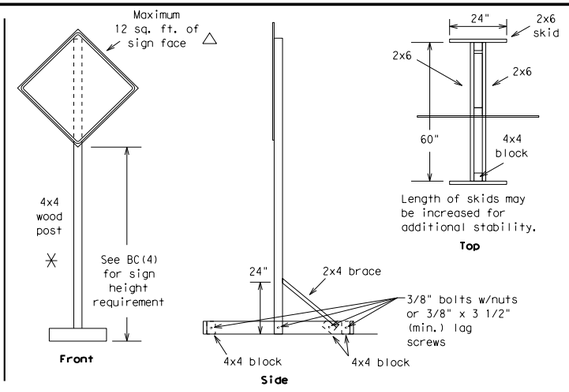
EXHIBIT B



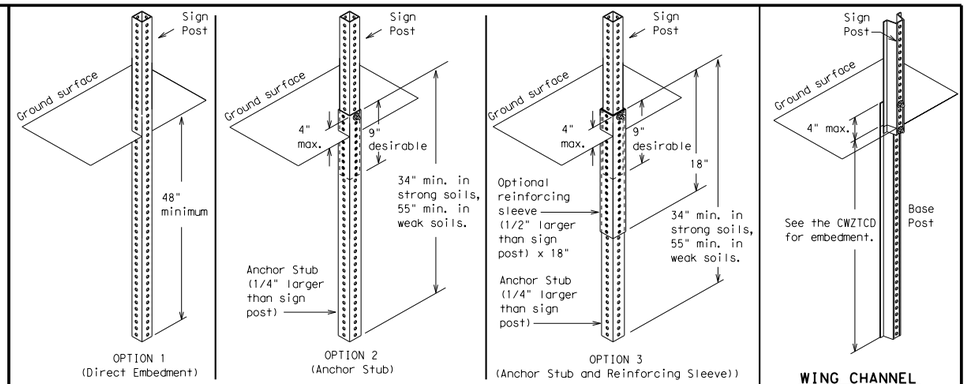


Length of skids may be increased for additional stability.

Top

SKID MOUNTED WOOD SIGN SUPPORTS

LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS □

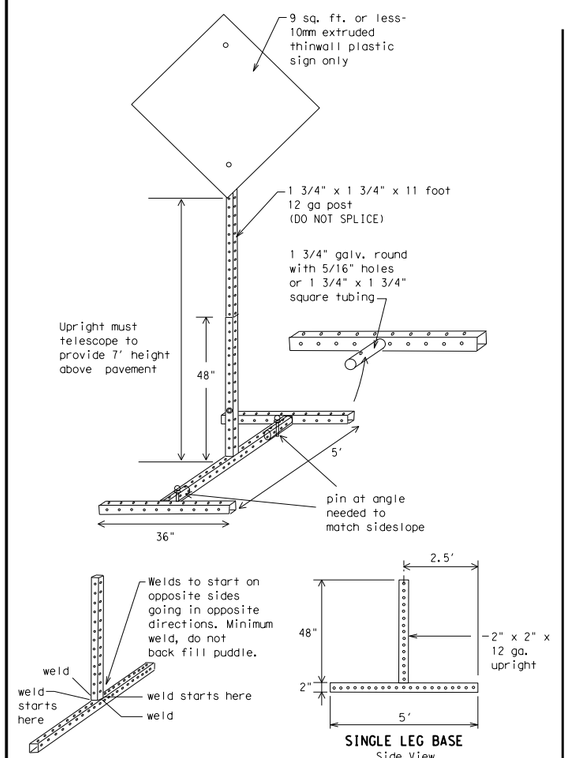


PERFORATED SQUARE METAL TUBING

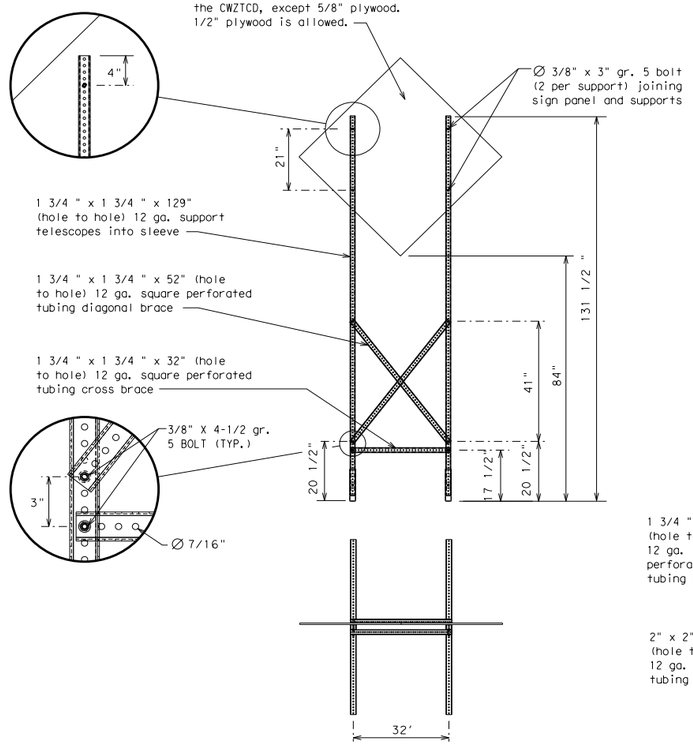
WING CHANNEL
Lap-splice/base
bolted anchor

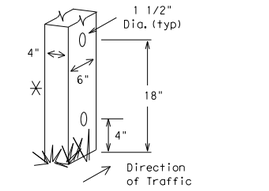
GROUND MOUNTED SIGN SUPPORTS

Refer to the CWZTCD and the manufacturer's installation procedure for each type sign support.
The maximum sign square footage shall adhere to the manufacturer's recommendation.
Two post installations can be used for larger signs.



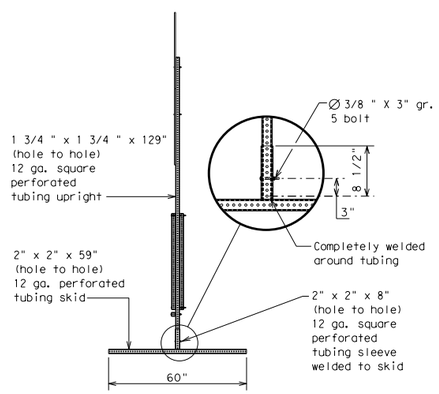
SINGLE LEG BASE
Side View





Nominal Post Size	Number of Posts	Maximum Sq. feet of Sign Face	Minimum Soil Embedment	Drilled Hole(s) Required
4 x 4	1	12	36"	NO
4 x 4	2	21	36"	NO
4 x 6	1	21	36"	YES
4 x 6	2	36	36"	YES

WOOD POST SYSTEM FOR GROUND MOUNTED SIGN SUPPORTS



WEDGE ANCHORS

Both steel and plastic Wedge Anchor Systems as shown on the SMD Standard Sheets may be used as temporary sign supports for signs up to 10 square feet of sign face. They may be set in concrete or in sturdy soils if approved by the Engineer. (See web address for "Traffic Engineering Standard Sheets" on BC(1)).

OTHER DESIGNS

MORE DETAILS OF APPROVED LONG/INTERMEDIATE AND SHORT TERM SUPPORTS CAN BE FOUND ON THE CWZTCD LIST. SEE BC(1) FOR WEBSITE LOCATION.

GENERAL NOTES

1. Nails may be used in the assembly of wooden sign supports, but 3/8" bolts with nuts or 3/8" x 3 1/2" lag screws must be used on every joint for final connection.
2. No more than 2 sign posts shall be placed within a 7 ft. circle, except for specific materials noted on the CWZTCD List.
3. When project is completed, all sign supports and foundations shall be removed from the project site. This will be considered subsidiary to Item 502.

□ See BC(4) for definition of "Work Duration."

✳ Wood sign posts MUST be one piece. Splicing will NOT be allowed. Posts shall be painted white.

△ See the CWZTCD for the type of sign substrate that can be used for each approved sign support.

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Texas Department of Transportation | Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-14

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SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

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EXHIBITS

WHEN NOT IN USE, REMOVE THE PCMS FROM THE RIGHT-OF-WAY OR PLACE THE PCMS BEHIND BARRIER OR GUARDRAIL WITH SIGN PANEL TURNED PARALLEL TO TRAFFIC

PORTABLE CHANGEABLE MESSAGE SIGNS

1. The Engineer/Inspector shall approve all messages used on portable changeable message signs (PCMS).
2. Messages on PCMS should contain no more than 8 words (about four to eight characters per word), not including simple words such as "TO," "FOR," "AT," etc.
3. Messages should consist of a single phase, or two phases that alternate. Three-phase messages are not allowed. Each phase of the message should convey a single thought, and must be understood by itself.
4. Use the word "EXIT" to refer to an exit ramp on a freeway; i.e., "EXIT CLOSED." Do not use the term "RAMP."
5. Always use the route or interstate designation (IH, US, SH, FM) along with the number when referring to a roadway.
6. When in use the bottom of a stationary PCMS message panel should be a minimum 7 feet above the roadway, where possible.
7. The message term "WEEKEND" should be used only if the work is to start on Saturday morning and end by Sunday evening at midnight. Actual days and hours of work should be displayed on the PCMS if work is to begin on Friday evening and/or continue into Monday morning.
8. The Engineer/Inspector may select one of two options which are available for displaying a two-phase message on a PCMS. Each phase may be displayed for either four seconds each or for three seconds each.
9. Do not "flash" messages or words included in a message. The message should be steady burn or continuous while displayed.
10. Do not present redundant information on a two-phase message; i.e., keeping two lines of the message the same and changing the third line.
11. Do not use the word "Danger" in message.
12. Do not display the message "LANES SHIFT LEFT" or "LANES SHIFT RIGHT" on a PCMS. Drivers do not understand the message.
13. Do not display messages that scroll horizontally or vertically across the face of the sign.
14. The following table lists abbreviated words and two-word phrases that are acceptable for use on a PCMS. Both words in a phrase must be displayed together. Words or phrases not on this list should not be abbreviated, unless shown in the TMUTCD.
15. PCMS character height should be at least 18 inches for trailer mounted units. They should be visible from at least 1/2 (.5) mile and the text should be legible from at least 600 feet at night and 800 feet in daylight. Truck mounted units must have a character height of 10 inches and must be legible from at least 400 feet.
16. Each line of text should be centered on the message board rather than left or right justified.
17. If disabled, the PCMS should default to an illegible display that will not alarm motorists and will only be used to alert workers that the PCMS has malfunctioned. A pattern such as a series of horizontal solid bars is appropriate.

WORD OR PHRASE	ABBREVIATION
Access Road	ACCS RD
Alternate	ALT
Avenue	AVE
Best Route	BEST RTE
Boulevard	BLVD
Bridge	BRDG
Cannot	CANT
Center	CTR
Construction Ahead	CONST AHD
CROSSING	XING
Detour Route	DETOUR RTE
Do Not	DONT
East	E
Eastbound	(route) E
Emergency	EMER
Emergency Vehicle	EMER VEH
Entrance, Enter	ENT
Express Lane	EXP LN
Expressway	EXPWY
XXXX Feet	XXXX FT
Fog Ahead	FOG AHD
Freeway	FRWY, FWY
Freeway Blocked	FWY BLKD
Friday	FRI
Hazardous Driving	HAZ DRIVING
Hazardous Material	HAZMAT
High-Occupancy	HOV
Vehicle Highway	HWY
Hour(s)	HR, HRS
Information	INFO
It Is	ITS
Junction	JCT
Left	LFT
Left Lane	LFT LN
Lane Closed	LN CLOSED
Lower Level	LWR LEVEL
Maintenance	MAINT

WORD OR PHRASE	ABBREVIATION
Major	MAJ
Miles	MI
Miles Per Hour	MPH
Minor	MNR
Monday	MON
Normal	NORM
North	N
Northbound	(route) N
Parking	PKING
Road	RD
Right Lane	RT LN
Saturday	SAT
Service Road	SERV RD
Shoulder	SHLDR
Slippery	SLIP
South	S
Southbound	(route) S
Speed	SPD
Street	ST
Sunday	SUN
Telephone	PHONE
Temporary	TEMP
Thursday	THURS
To Downtown	TO DWNTN
Traffic	TRAF
Travelers	TRVLRS
Tuesday	TUES
Time Minutes	TIME MIN
Upper Level	UPR LEVEL
Vehicles (s)	VEH, VEHS
Warning	WARN
Wednesday	WED
Weight Limit	WT LIMIT
West	W
Westbound	(route) W
Wet Pavement	WET PVMT
Will Not	WONT

Roadway designation # IH-number, US-number, SH-number, FM-number

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

(The Engineer may approve other messages not specifically covered here.)

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

FREEWAY CLOSED X MILE	FRONTAGE ROAD CLOSED
ROAD CLOSED AT SH XXX	SHOULDER CLOSED XXX FT
ROAD CLSD AT FM XXXX	RIGHT LN CLOSED XXX FT
RIGHT X LANES CLOSED	RIGHT X LANES OPEN
CENTER LANE CLOSED	DAYTIME LANE CLOSURES
NIGHT LANE CLOSURES	I-XX SOUTH EXIT CLOSED
VARIOUS LANES CLOSED	EXIT XXX CLOSED X MILE
EXIT CLOSED	RIGHT LN TO BE CLOSED
MALL DRIVEWAY CLOSED	X LANES CLOSED TUE - FRI
XXXXXXXX BLVD CLOSED	

Other Condition List

ROADWORK XXX FT	ROAD REPAIRS XXXX FT
FLAGGER XXXX FT	LANE NARROWS XXXX FT
RIGHT LN NARROWS XXXX FT	TWO-WAY TRAFFIC XX MILE
MERGING TRAFFIC XXXX FT	CONST TRAFFIC XXX FT
LOOSE GRAVEL XXXX FT	UNEVEN LANES XXXX FT
DETOUR X MILE	ROUGH ROAD XXXX FT
ROADWORK PAST SH XXXX	ROADWORK NEXT FRI-SUN
BUMP XXXX FT	US XXX EXIT X MILES
TRAFFIC SIGNAL XXXX FT	LANES SHIFT *

* LANES SHIFT in Phase 1 must be used with STAY IN LANE in Phase 2.

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List		Location List	Warning List	** Advance Notice List
MERGE RIGHT	FORM X LINES RIGHT	AT FM XXXX	SPEED LIMIT XX MPH	TUE-FRI XX AM- X PM
DETOUR NEXT X EXITS	USE XXXXX RD EXIT	BEFORE RAILROAD CROSSING	MAXIMUM SPEED XX MPH	APR XX-XX X PM-X AM
USE EXIT XXX	USE EXIT I-XX NORTH	NEXT X MILES	MINIMUM SPEED XX MPH	BEGINS MONDAY
STAY ON US XXX SOUTH	USE I-XX E TO I-XX N	PAST US XXX EXIT	ADVISORY SPEED XX MPH	BEGINS MAY XX
TRUCKS USE US XXX N	WATCH FOR TRUCKS	XXXXXXX TO XXXXXXX	RIGHT LANE EXIT	MAY X-X XX PM - XX AM
WATCH FOR TRUCKS	EXPECT DELAYS	US XXX TO FM XXXX	USE CAUTION	NEXT FRI-SUN
EXPECT DELAYS	PREPARE TO STOP		DRIVE SAFELY	XX AM TO XX PM
REDUCE SPEED XXX FT	END SHOULDER USE		DRIVE WITH CARE	NEXT TUE AUG XX
USE OTHER ROUTES	WATCH FOR WORKERS			TONIGHT XX PM-XX AM
STAY IN LANE *				

** See Application Guidelines Note 6.

APPLICATION GUIDELINES

1. Only 1 or 2 phases are to be used on a PCMS.
2. The 1st phase (or both) should be selected from the "Road/Lane/Ramp Closure List" and the "Other Condition List".
3. A 2nd phase can be selected from the "Action to Take/Effect on Travel, Location, General Warning, or Advance Notice Phase Lists".
4. A Location Phase is necessary only if a distance or location is not included in the first phase selected.
5. If two PCMS are used in sequence, they must be separated by a minimum of 1000 ft. Each PCMS shall be limited to two phases, and should be understandable by themselves.
6. For advance notice, when the current date is within seven days of the actual work date, calendar days should be replaced with days of the week. Advance notification should typically be for no more than one week prior to the work.

WORDING ALTERNATIVES

1. The words RIGHT, LEFT and ALL can be interchanged as appropriate.
2. Roadway designations IH, US, SH, FM and LP can be interchanged as appropriate.
3. EAST, WEST, NORTH and SOUTH (or abbreviations E, W, N and S) can be interchanged as appropriate.
4. Highway names and numbers replaced as appropriate.
5. ROAD, HIGHWAY and FREEWAY can be interchanged as needed.
6. AHEAD may be used instead of distances if necessary.
7. FT and MI, MILE and MILES interchanged as appropriate.
8. AT, BEFORE and PAST interchanged as needed.
9. Distances or AHEAD can be eliminated from the message if a location phase is used.

PCMS SIGNS WITHIN THE R.O.W. SHALL BE BEHIND GUARDRAIL OR CONCRETE BARRIER OR SHALL HAVE A MINIMUM OF FOUR (4) PLASTIC DRUMS PLACED PERPENDICULAR TO TRAFFIC ON THE UPSTREAM SIDE OF THE PCMS, WHEN EXPOSED TO ONE DIRECTION OF TRAFFIC. WHEN EXPOSED TO TWO WAY TRAFFIC, THE FOUR DRUMS SHOULD BE PLACED WITH ONE DRUM AT EACH OF THE FOUR CORNERS OF THE UNIT.

FULL MATRIX PCMS SIGNS

1. When Full Matrix PCMS signs are used, the character height and legibility/visibility requirements shall be maintained as listed in Note 15 under "PORTABLE CHANGEABLE MESSAGE SIGNS" above.
2. When symbol signs, such as the "Flagger Symbol"(CW20-7) are represented graphically on the Full Matrix PCMS sign and, with the approval of the Engineer, it shall maintain the legibility/visibility requirement listed above.
3. When symbol signs are represented graphically on the Full Matrix PCMS, they shall only supplement the use of the static sign represented, and shall not substitute for, or replace that sign.
4. A full matrix PCMS may be used to simulate a flashing arrow board provided it meets the visibility, flash rate and dimming requirements on BC(7), for the same size arrow.

Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC(6)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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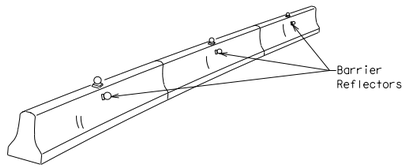
100

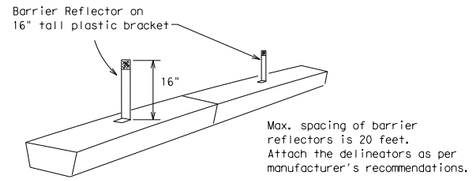
EXHIBIT B

1. Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
2. Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost of the reflectors shall be considered subsidiary to Item 512.

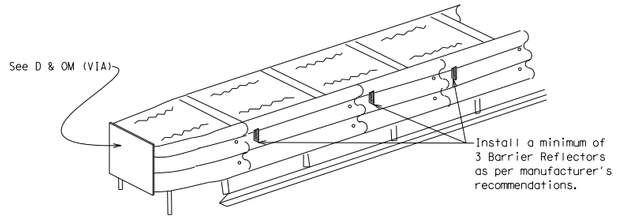


CONCRETE TRAFFIC BARRIER (CTB)

3. Where traffic is on one side of the CTB, two (2) Barrier Reflectors shall be mounted in approximately the midsection of each section of CTB. An alternate mounting location is uniformly spaced at one end of each CTB. This will allow for attachment of a barrier grapple without damaging the reflector. The Barrier Reflector mounted on the side of the CTB shall be located directly below the reflector mounted on top of the barrier, as shown in the detail above.
4. Where CTB separates two-way traffic, three barrier reflectors shall be mounted on each section of CTB. The reflector unit on top shall have two yellow reflective faces (Bi-Directional)while the reflectors on each side of the barrier shall have one yellow reflective face, as shown in the detail above.
5. When CTB separates traffic traveling in the same direction, no barrier reflectors will be required on top of the CTB.
6. Barrier Reflector units shall be yellow or white in color to match the edgeline being supplemented.
7. Maximum spacing of Barrier Reflectors is forty (40) feet.
8. Pavement markers or temporary flexible-reflective roadway marker tabs shall NOT be used as CTB delineation.
9. Attachment of Barrier Reflectors to CTB shall be per manufacturer's recommendations.
10. Missing or damaged Barrier Reflectors shall be replaced as directed by the Engineer.
11. Single slope barriers shall be delineated as shown on the above detail.



LOW PROFILE CONCRETE BARRIER (LPCB)

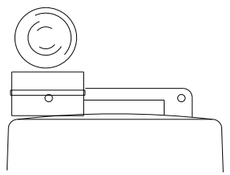


DELINEATION OF END TREATMENTS

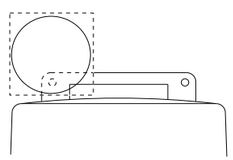
END TREATMENTS FOR CTB'S USED IN WORK ZONES

End treatments used on CTB's in work zones shall meet crashworthy standards as defined in the National Cooperative Highway Research Report 350. Refer to the CWZTCD List for approved end treatments and manufacturers.

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS



Type C Warning Light or approved substitute mounted on a drum adjacent to the travel way.



Warning reflector may be round or square. Must have a yellow reflective surface area of at least 30 square inches

WARNING LIGHTS

1. Warning lights shall meet the requirements of the TMUTCD.
2. Warning lights shall NOT be installed on barricades.
3. Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "FL". The Type A Warning Lights shall not be used with signs manufactured with Type B_{FL} or C_{FL} Sheeting meeting the requirements of Departmental Material Specification DMS-8300.
4. Type-C and Type D 360 degree Steady Burn Lights are intended to be used in a series for delineation to supplement other traffic control devices. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "SB".
5. The Engineer/Inspector or the plans shall specify the location and type of warning lights to be installed on the traffic control devices.
6. When required by the Engineer, the Contractor shall furnish a copy of the warning lights certification. The warning light manufacturer will certify the warning lights meet the requirements of the latest ITE Purchase Specifications for Flashing and Steady-Burn Warning Lights.
7. When used to delineate curves, Type-C and Type D Steady Burn Lights should only be placed on the outside of the curve, not the inside.
8. The location of warning lights and warning reflectors on drums shall be as shown elsewhere in the plans.

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

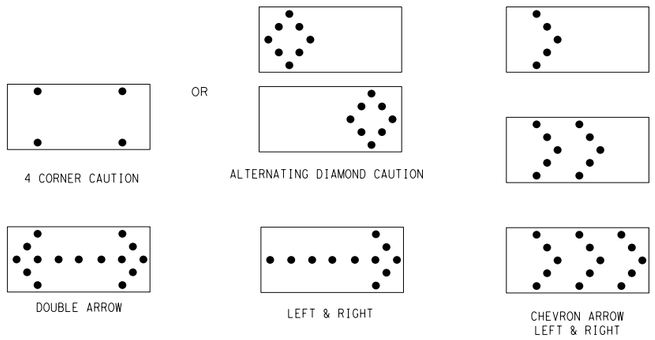
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing devices to form a merging taper may be used for delineation. If used, the successive flashing of the sequential warning lights should occur from the beginning of the taper to the end of the merging taper in order to identify the desired vehicle path. The rate of flashing for each light shall be 65 flashes per minute, plus or minus 10 flashes.
4. Type C and D steady-burn warning lights are intended to be used in a series to delineate the edge of the travel lane on detours, on lane changes, on lane closures, and on other similar conditions.
5. Type A, Type C and Type D warning lights shall be installed at locations as detailed on other sheets in the plans.
6. Warning lights shall not be installed on a drum that has a sign, chevron or vertical panel.
7. The maximum spacing for warning lights on drums should be identical to the channelizing device spacing.

WARNING REFLECTORS MOUNTED ON PLASTIC DRUMS AS A SUBSTITUTE FOR TYPE C (STEADY BURN) WARNING LIGHTS

1. A warning reflector or approved substitute may be mounted on a plastic drum as a substitute for a Type C, steady burn warning light at the discretion of the Contractor unless otherwise noted in the plans.
2. The warning reflector shall be yellow in color and shall be manufactured using a sign substrate approved for use with plastic drums listed on the CWZTCD.
3. The warning reflector shall have a minimum retroreflective surface area (one-side) of 30 square inches.
4. Round reflectors shall be fully reflectorized, including the area where attached to the drum.
5. Square substrates must have a minimum of 30 square inches of reflectorized sheeting. They do not have to be reflectorized where it attaches to the drum.
6. The side of the warning reflector facing approaching traffic shall have sheeting meeting the color and retroreflectivity requirements for DMS 8300-Type B or Type C.
7. When used near two-way traffic, both sides of the warning reflector shall be reflectorized.
8. The warning reflector should be mounted on the side of the handle nearest approaching traffic.
9. The maximum spacing for warning reflectors should be identical to the channelizing device spacing requirements.

Arrow Boards may be located behind channelizing devices in place for a shoulder taper or merging taper, otherwise they shall be delineated with four (4) channelizing devices placed perpendicular to traffic on the upstream side of traffic.

1. The Flashing Arrow Board should be used for all lane closures on multi-lane roadways, or slow moving maintenance or construction activities on the travel lanes.
2. Flashing Arrow Boards should not be used on two-lane, two-way roadways, detours, diversions or work on shoulders unless the "CAUTION" display (see detail below) is used.
3. The Engineer/Inspector shall choose all appropriate signs, barricades and/or other traffic control devices that should be used in conjunction with the Flashing Arrow Board.
4. The Flashing Arrow Board should be able to display the following symbols:



5. The "CAUTION" display consists of four corner lamps flashing simultaneously, or the Alternating Diamond Caution mode as shown.
6. The straight line caution display is NOT ALLOWED.
7. The Flashing Arrow Board shall be capable of minimum 50 percent dimming from rated lamp voltage. The flashing rate of the lamps shall not be less than 25 nor more than 40 flashes per minute.
8. Minimum lamp "on time" shall be approximately 50 percent for the flashing arrow and equal intervals of 25 percent for each sequential phase of the flashing chevron.
9. The sequential arrow display is NOT ALLOWED.
10. The flashing arrow display is the TxDOT standard; however, the sequential Chevron display may be used during daylight operations.
11. The Flashing Arrow Board shall be mounted on a vehicle, trailer or other suitable support.
12. A Flashing Arrow Board SHALL NOT BE USED to laterally shift traffic.
13. A full matrix PCMS may be used to simulate a Flashing Arrow Board provided it meets visibility, flash rate and dimming requirements on this sheet for the same size arrow.
14. Minimum mounting height of trailer mounted Arrow Boards should be 7 feet from roadway to bottom of panel.

REQUIREMENTS			
TYPE	MINIMUM SIZE	MINIMUM NUMBER OF PANEL LAMPS	MINIMUM VISIBILITY DISTANCE
B	30 x 60	13	3/4 mile
C	48 x 96	15	1 mile

ATTENTION

Flashing Arrow Boards shall be equipped with automatic dimming devices.

WHEN NOT IN USE, REMOVE THE ARROW BOARD FROM THE RIGHT-OF-WAY OR PLACE THE ARROW BOARD BEHIND CONCRETE TRAFFIC BARRIER OR GUARDRAIL.

FLASHING ARROW BOARDS

TRUCK-MOUNTED ATTENUATORS

1. Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the National Cooperative Highway Research Report No. 350 (NCHRP 350) or the Manual for Assessing Safety Hardware (MASH).
2. Refer to the CWZTCD for the requirements of Level 2 or Level 3 TMAs.
3. Refer to the CWZTCD for a list of approved TMAs.
4. TMAs are required on freeways unless otherwise noted in the plans.
5. A TMA should be used anytime that it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the work performance.
6. The only reason a TMA should not be required is when a work area is spread down the roadway and the work crew is an extended distance from the TMA.

Texas Department of Transportation — Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION ARROW PANEL, REFLECTORS, WARNING LIGHTS & ATTENUATOR

BC(7)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS 9-07 8-14 7-13	DIST	COUNTY		SHEET NO.
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GENERAL NOTES

1. For long term stationary work zones on freeways, drums shall be used as the primary channelizing device.
2. For intermediate term stationary work zones on freeways, drums should be used as the primary channelizing device but may be replaced in tangent sections by vertical panels, or 42" two-piece cones. In tangent sections one-piece cones may be used with the approval of the Engineer but only if personnel are present on the project at all times to maintain the cones in proper position and location.
3. For short term stationary work zones on freeways, drums are the preferred channelizing device but may be replaced in tapers, transitions and tangent sections by vertical panels, two-piece cones or one-piece cones as approved by the Engineer.
4. Drums and all related items shall comply with the requirements of the current version of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
5. Drums, bases, and related materials shall exhibit good workmanship and shall be free from objectionable marks or defects that would adversely affect their appearance or serviceability.
6. The Contractor shall have a maximum of 24 hours to replace any plastic drums identified for replacement by the Engineer/Inspector. The replacement device must be an approved device.

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

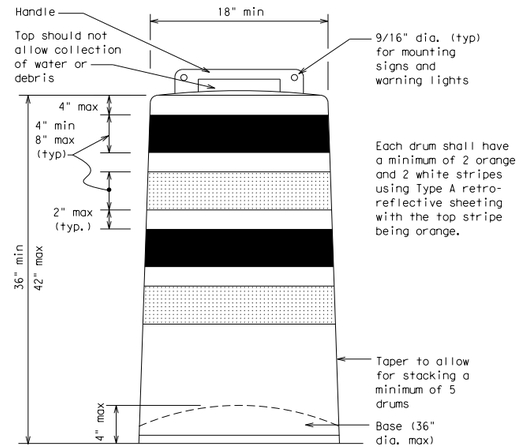
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents accidental separation due to normal handling and/or air turbulence created by passing vehicles.
3. Plastic drums shall be constructed of lightweight flexible, and deformable materials. The Contractor shall NOT use metal drums or single piece plastic drums as channelization devices or sign supports.
4. Drums shall present a profile that is a minimum of 18 inches in width at the 36 inch height when viewed from any direction. The height of drum unit (body installed on base) shall be a minimum of 36 inches and a maximum of 42 inches.
5. The top of the drum shall have a built-in handle for easy pickup and shall be designed to drain water and not collect debris. The handle shall have a minimum of two widely spaced 9/16 inch diameter holes to allow attachment of a warning light, warning reflector unit or approved compliant sign.
6. The exterior of the drum body shall have a minimum of four alternating orange and white retroreflective circumferential stripes not less than 4 inches nor greater than 8 inches in width. Any non-reflectorized space between any two adjacent stripes shall not exceed 2 inches in width.
7. Bases shall have a maximum width of 36 inches, a maximum height of 4 inches, and a minimum of two footholds of sufficient size to allow base to be held down while separating the drum body from the base.
8. Plastic drums shall be constructed of ultra-violet stabilized, orange, high-density polyethylene (HDPE) or other approved material.
9. Drum body shall have a maximum unballasted weight of 11 lbs.
10. Drum and base shall be marked with manufacturer's name and model number.

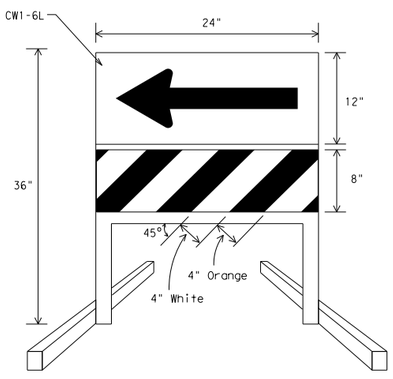
RETROREFLECTIVE SHEETING

1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials." Type A reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall be suitable for use on and shall adhere to the drum surface such that, upon vehicular impact, the sheeting shall remain adhered in-place and exhibit no delaminating, cracking, or loss of retroreflectivity other than that loss due to abrasion of the sheeting surface.

BALLAST

1. Unballasted bases shall be large enough to hold up to 50 lbs. of sand. This base, when filled with the ballast material, should weigh between 35 lbs (minimum) and 50 lbs (maximum). The ballast may be sand in one to three sandbags separate from the base, sand in a sand-filled plastic base, or other ballasting devices as approved by the Engineer. Stacking of sandbags will be allowed, however height of sandbags above pavement surface may not exceed 12 inches.
2. Bases with built-in ballast shall weigh between 40 lbs. and 50 lbs. Built-in ballast can be constructed of an integral crumb rubber base or a solid rubber base.
3. Recycled truck tire sidewalls may be used for ballast on drums approved for this type of ballast on the CWZTCD list.
4. The ballast shall not be heavy objects, water, or any material that would become hazardous to motorists, pedestrians, or workers when the drum is struck by a vehicle.
5. When used in regions susceptible to freezing, drums shall have drainage holes in the bottoms so that water will not collect and freeze becoming a hazard when struck by a vehicle.
6. Ballast shall not be placed on top of drums.
7. Adhesives may be used to secure base of drums to pavement.

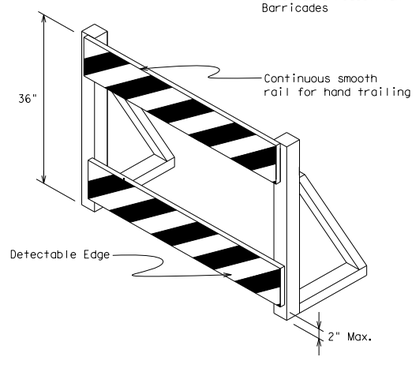




DIRECTION INDICATOR BARRICADE

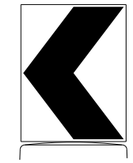
1. The Direction Indicator Barricade may be used in tapers, transitions, and other areas where specific directional guidance to drivers is necessary.
2. If used, the Direction Indicator Barricade should be used in series to direct the driver through the transition and into the intended travel lane.
3. The Direction Indicator Barricade shall consist of One-Direction Large Arrow (CW1-6) sign in the size shown with a black arrow on a background of Type B_{FL} or Type C_{FL} Orange retroreflective sheeting above a rail with Type A retroreflective sheeting in alternating 4" white and orange stripes sloping downward at an angle of 45 degrees in the direction road users are to pass. Sheeting types shall be as per DMS 8300.
4. Double arrows on the Direction Indicator Barricade will not be allowed.
5. Approved manufacturers are shown on the CWZTCD List. Ballast shall be as approved by the manufacturers instructions.

This detail is not intended for fabrication. See note 3 and the CWZTCD list for providers of approved Detectable Pedestrian Barricades

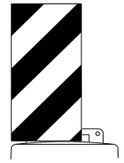


DETECTABLE PEDESTRIAN BARRICADES

1. When existing pedestrian facilities are disrupted, closed, or relocated in a TTC zone, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility.
2. Where pedestrians with visual disabilities normally use the closed sidewalk, a device that is detectable by a person with a visual disability traveling with the aid of a long cane shall be placed across the full width of the closed sidewalk.
3. Detectable pedestrian barricades similar to the one pictured above, longitudinal channelizing devices, some concrete barriers, and wood or chain link fencing with a continuous detectable edging can satisfactorily delineate a pedestrian path.
4. Tape, rope, or plastic chain strung between devices are not detectable, do not comply with the design standards in the "Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG)" and should not be used as a control for pedestrian movements.
5. Warning lights shall not be attached to detectable pedestrian barricades.
6. Detectable pedestrian barricades may use 8" nominal barricade rails as shown on BC(10) provided that the top rail provides a smooth continuous rail suitable for hand trailing with no splinters, burrs, or sharp edges.



18" x 24" Sign
(Maximum Sign Dimension)
Chevron CW1-8, Opposing Traffic Lane Divider, Driveway sign D70a, Keep Right R4 series or other signs as approved by Engineer



12" x 24"
Vertical Panel
mount with diagonals sloping down towards travel way

Plywood, Aluminum or Metal sign substrates shall NOT be used on plastic drums

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

1. Signs used on plastic drums shall be manufactured using substrates listed on the CWZTCD.
2. Chevrons and other work zone signs with an orange background shall be manufactured with Type B_{FL} or Type C_{FL} Orange sheeting meeting the color and retroreflectivity requirements of DMS-8300, "Sign Face Material," unless otherwise specified in the plans.
3. Vertical Panels shall be manufactured with orange and white sheeting meeting the requirements of DMS-8300 Type A Diagonal stripes on Vertical Panels shall slope down toward the intended traveled lane.
4. Other sign messages (text or symbolic) may be used as approved by the Engineer. Sign dimensions shall not exceed 18 inches in width or 24 inches in height, except for the R9 series signs discussed in note 8 below.
5. Signs shall be installed using a 1/2 inch bolt (nominal) and nut, two washers, and one locking washer for each connection.
6. Mounting bolts and nuts shall be fully engaged and adequately torqued. Bolts should not extend more than 1/2 inch beyond nuts.
7. Chevrons may be placed on drums on the outside of curves, on merging tapers or on shifting tapers. When used in these locations they may be placed on every drum or spaced not more than on every third drum. A minimum of three (3) should be used at each location called for in the plans.
8. R9-9, R9-10, R9-11 and R9-11a Sidewalk Closed signs which are 24 inches wide may be mounted on plastic drums, with approval of the Engineer.

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Texas Department of Transportation | Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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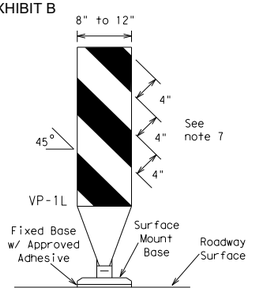
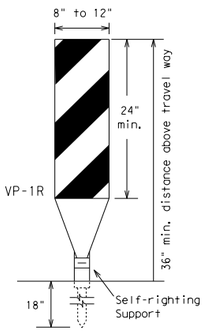
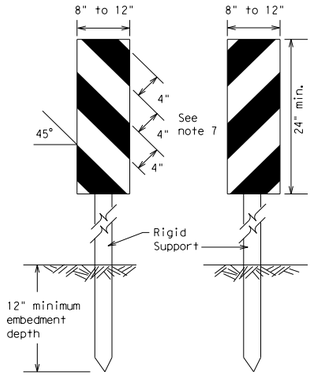
EXHIBIT B

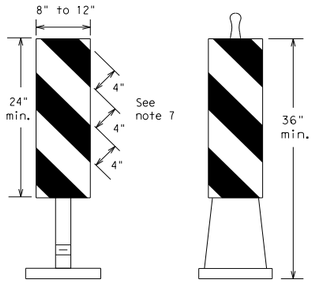






FIXED
(Rigid or self-righting)

DRIVEABLE



(Rigid or self-righting)

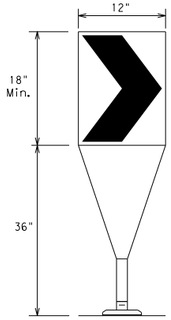
PORTABLE

1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is required. The Engineer/Inspector shall refer to the Roadway Design Manual Appendix B "Treatment of Pavement Drop-offs in Work Zones" for additional guidelines on the use of VP's for drop-offs.
3. VP's should be mounted back to back if used at the edge of cuts adjacent to two-way two lane roadways. Stripes are to be reflective orange and reflective white and should always slope downward toward the travel lane.
4. VP's used on expressways and freeways or other high speed roadways, may have more than 270 square inches of retroreflective area facing traffic.
5. Self-righting supports are available with portable base. See "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
6. Sheeting for the VP's shall be retroreflective Type A conforming to Departmental Material Specification DMS-8300, unless noted otherwise.
7. Where the height of reflective material on the vertical panel is 36 inches or greater, a panel stripe of 6 inches shall be used.

VERTICAL PANELS (VPs)

1. Opposing Traffic Lane Dividers (OTLD) are delineation devices designed to convert a normal one-way roadway section to two-way operation. OTLD's are used on temporary centerlines. The upward and downward arrows on the sign's face indicate the direction of traffic on either side of the divider. The base is secured to the pavement with an adhesive or rubber weight to minimize movement caused by a vehicle impact or wind gust.
2. The OTLD may be used in combination with 42" cones or VPs.
3. Spacing between the OTLD shall not exceed 500 feet. 42" cones or VPs placed between the OTLD's should not exceed 100 foot spacing.
4. The OTLD shall be orange with a black non-reflective legend. Sheeting for the OTLD shall be retroreflective Type B_{FL} or Type C_{FL} conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



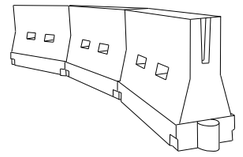
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

1. The chevron shall be a vertical rectangle with a minimum size of 12 by 18 inches.
2. Chevrons are intended to give notice of a sharp change of alignment with the direction of travel and provide additional emphasis and guidance for vehicle operators with regard to changes in horizontal alignment of the roadway.
3. Chevrons, when used, shall be erected on the outside of a sharp curve or turn, or on the far side of an intersection. They shall be in line with and at right angles to approaching traffic. Spacing should be such that the motorist always has three in view, until the change in alignment eliminates its need.
4. To be effective, the chevron should be visible for at least 500 feet.
5. Chevrons shall be orange with a black nonreflective legend. Sheeting for the chevron shall be retroreflective Type B_{FL} or Type C_{FL} conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.
6. For Long Term Stationary use on tapers or transitions on freeways and divided highways self-righting chevrons may be used to supplement plastic drums but not to replace plastic drums.

CHEVRONS

GENERAL NOTES

1. Work Zone channelizing devices illustrated on this sheet may be installed in close proximity to traffic and are suitable for use on high or low speed roadways. The Engineer/Inspector shall ensure that spacing and placement is uniform and in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
2. Channelizing devices shown on this sheet may have a driveable, fixed or portable base. The requirement for self-righting channelizing devices must be specified in the General Notes or other plan sheets.
3. Channelizing devices on self-righting supports should be used in work zone areas where channelizing devices are frequently impacted by errant vehicles or vehicle related wind gusts making alignment of the channelizing devices difficult to maintain. Locations of these devices shall be detailed elsewhere in the plans. These devices shall conform to the TMUTCD and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
4. The Contractor shall maintain devices in a clean condition and replace damaged, nonreflective, faded, or broken devices and bases as required by the Engineer/Inspector. The Contractor shall be required to maintain proper device spacing and alignment.
5. Portable bases shall be fabricated from virgin and/or recycled rubber. The portable bases shall weigh a minimum of 30 lbs.
6. Pavement surfaces shall be prepared in a manner that ensures proper bonding between the adhesives, the fixed mount bases and the pavement surface. Adhesives shall be prepared and applied according to the manufacturer's recommendations.
7. The installation and removal of channelizing devices shall not cause detrimental effects to the final pavement surfaces, including pavement surface discoloration or surface integrity. Driveable bases shall not be permitted on final pavement surfaces. The Engineer/Inspector shall approve all application and removal procedures of fixed bases.



LONGITUDINAL CHANNELIZING DEVICES (LCD)

1. LCDs are crashworthy, lightweight, deformable devices that are highly visible, have good target value and can be connected together. They are not designed to contain or redirect a vehicle on impact.
2. LCDs may be used instead of a line of cones or drums.
3. LCDs shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. LCDs should not be used to provide positive protection for obstacles, pedestrians or workers.
5. LCDs shall be supplemented with retroreflective delineation as required for temporary barriers on BC(7) when placed roughly parallel to the travel lanes.
6. LCDs used as barricades placed perpendicular to traffic should have at least one row of reflective sheeting meeting the requirements for barricade rails as shown on BC(10) placed near the top of the LCD along the full length of the device.

WATER BALLASTED SYSTEMS USED AS BARRIERS

1. Water ballasted systems used as barriers shall not be used solely to channelize road users, but also to protect the work space per the appropriate NCHRP 350 crashworthiness requirements based on roadway speed and barrier application.
2. Water ballasted systems used to channelize vehicular traffic shall be supplemented with retroreflective delineation or channelizing devices to improve daytime/nighttime visibility. They may also be supplemented with pavement markings.
3. Water ballasted systems used as barriers shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. Water ballasted systems used as barriers should not be used for a merging taper except in low speed (less than 45 MPH) urban areas. When used on a taper in a low speed urban area, the taper shall be delineated and the taper length should be designed to optimize road user operations considering the available geometric conditions.
5. When water ballasted systems used as barriers have blunt ends exposed to traffic, they should be attenuated as per manufacturer recommendations or flared to a point outside the clear zone.

If used to channelize pedestrians, longitudinal channelizing devices or water ballasted systems must have a continuous detectable bottom for users of long canes and the top of the unit shall not be less than 32 inches in height.

HOLLOW OR WATER BALLASTED SYSTEMS USED AS LONGITUDINAL CHANNELIZING DEVICES OR BARRIERS

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'
35		205'	225'	245'	35'	70'
40		265'	295'	320'	40'	80'
45	L=WS	450'	495'	540'	45'	90'
50		500'	550'	600'	50'	100'
55		550'	605'	660'	55'	110'
60		600'	660'	720'	60'	120'
65		650'	715'	780'	65'	130'
70		700'	770'	840'	70'	140'
75		750'	825'	900'	75'	150'
80		800'	880'	960'	80'	160'

** Taper lengths have been rounded off.
L=Length of Taper (FT.) W=Width of Offset (FT.)
S=Posted Speed (MPH)

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

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Texas Department of Transportation | Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-14

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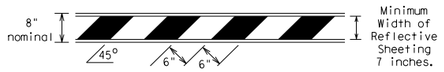
EXHIBIT B

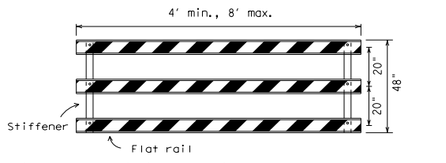
TYPE 3 BARRICADES

1. Refer to the Compliant Work Zone Traffic Control Devices List (CWZTCD) for details of the Type 3 Barricades and a list of all materials used in the construction of Type 3 Barricades.
2. Type 3 Barricades shall be used at each end of construction projects closed to all traffic.
3. Barricades extending across a roadway should have stripes that slope downward in the direction toward which traffic must turn in detouring. When both right and left turns are provided, the chevron striping may slope downward in both directions from the center of the barricade. Where no turns are provided at a closed road striping should slope downward in both directions toward the center of roadway.
4. Striping of rails, for the right side of the roadway, should slope downward to the left. For the left side of the roadway, striping should slope downward to the right.
5. Identification markings may be shown only on the back of the barricade rails. The maximum height of letters and/or company logos used for identification shall be 1".
6. Barricades shall not be placed parallel to traffic unless an adequate clear zone is provided.
7. Warning lights shall NOT be installed on barricades.
8. Where barricades require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand is recommended. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight. Sand bags shall not be stacked in a manner that covers any portion of a barricade rails reflective sheeting. Rock, concrete, iron, steel or other solid objects will NOT be permitted. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall not be used for sandbags. Sandbags shall only be placed along or upon the base supports of the device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners.
9. Sheeting for barricades shall be retroreflective Type A conforming to Departmental Material Specification DMS-8300 unless otherwise noted.

Barricades shall NOT be used as a sign support.

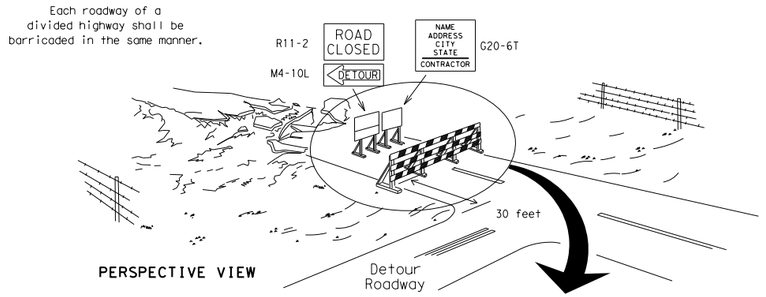


TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



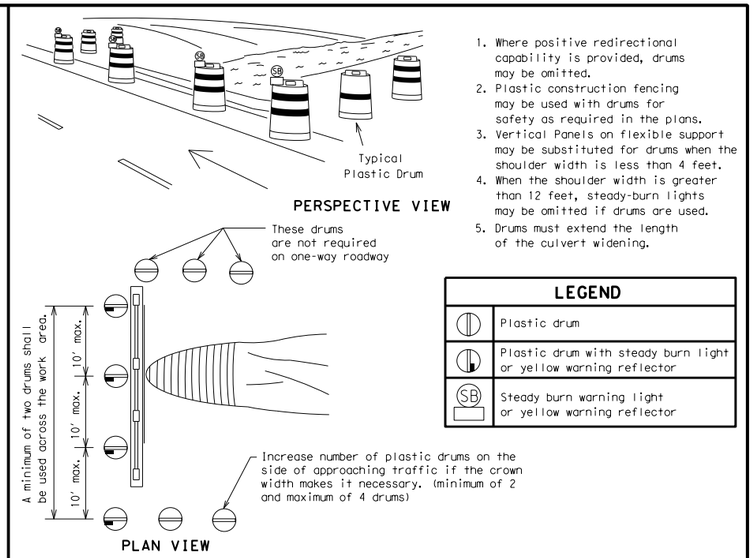
Stiffener may be inside or outside of support, but no more than 2 stiffeners shall be allowed on one barricade.

TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES



1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

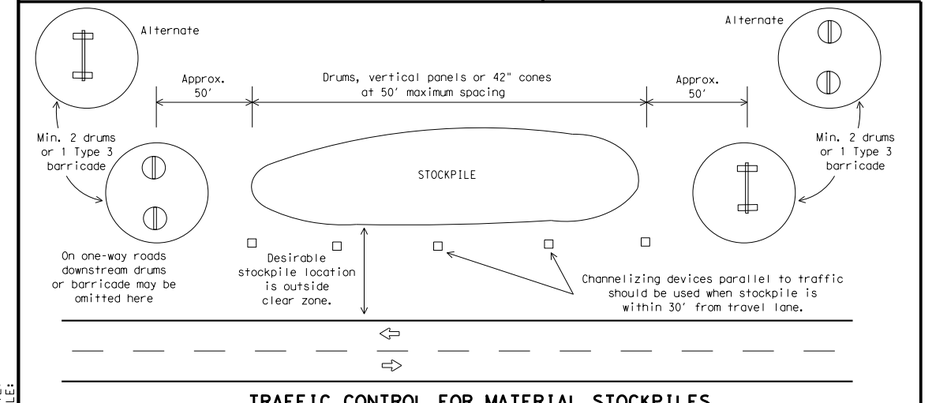
TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder width is greater than 12 feet, steady-burn lights may be omitted if drums are used.
5. Drums must extend the length of the culvert widening.

LEGEND	
	Plastic drum
	Plastic drum with steady burn light or yellow warning reflector
SB	Steady burn warning light or yellow warning reflector

CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



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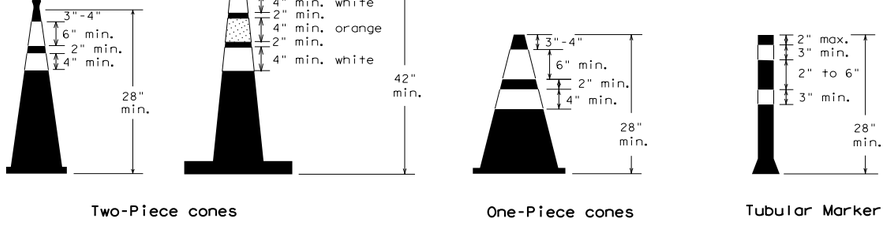
TRAFFIC CONTROL FOR MATERIAL STOCKPILES

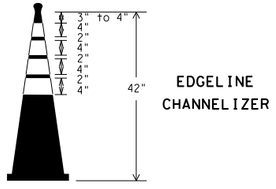


28" Cones shall have a minimum weight of 9 1/2 lbs.

42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

1. Traffic cones and tubular markers shall be predominantly orange, and meet the height and weight requirements shown above.
2. One-piece cones have the body and base of the cone molded in one consolidated unit. Two-piece cones have a cone shaped body and a separate rubber base, or ballast, that is added to keep the device upright and in place.
3. Two-piece cones may have a handle or loop extending up to 8" above the minimum height shown, in order to aid in retrieving the device.
4. Cones or tubular markers used at night shall have white or white and orange reflective bands as shown above. The reflective bands shall have a smooth, sealed outer surface and meet the requirements of Departmental Material Specification DMS-8300 Type A.
5. 28" cones and tubular markers are generally suitable for short duration and short-term stationary work as defined on BC(4). These should not be used for intermediate-term or long-term stationary work unless personnel is on-site to maintain them in their proper upright position.
6. 42" two-piece cones, vertical panels or drums are suitable for all work zone durations.
7. Cones or tubular markers used on each project should be of the same size and shape.

THIS DEVICE SHALL NOT BE USED ON PROJECTS LET AFTER MARCH 2014.



1. This device is intended only for use in place of a vertical panel to channelize traffic by indicating the edge of the travel lane. It is not intended to be used in transitions or tapers.
2. This device shall not be used to separate lanes of traffic (opposing or otherwise) or warn of objects.
3. This device is based on a 42 inch, two-piece cone with an alternate striping pattern: four 4 inch retroreflective bands, with an approximate 2 inch gap between bands. The color of the band should correspond to the color of the edgeline (yellow for left edgeline, white for right edgeline) for which the device is substituted or for which it supplements. The reflectorized bands shall be retroreflective Type A conforming to Departmental Material Specification DMS-8300, unless otherwise noted.
4. The base must weigh a minimum of 30 lbs.

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Texas Department of Transportation | Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-14

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EXHIBIT B

WORK ZONE PAVEMENT MARKINGS

GENERAL

1. The Contractor shall be responsible for maintaining work zone and existing pavement markings, in accordance with the standard specifications and special provisions, on all roadways open to traffic within the CSJ limits unless otherwise stated in the plans.
2. Color, patterns and dimensions shall be in conformance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
3. Additional supplemental pavement marking details may be found in the plans or specifications.
4. Pavement markings shall be installed in accordance with the TMUTCD and as shown on the plans.
5. When short term markings are required on the plans, short term markings shall conform with the TMUTCD, the plans and details as shown on the Standard Plan Sheet WZ(STPM).
6. When standard pavement markings are not in place and the roadway is opened to traffic, DO NOT PASS signs shall be erected to mark the beginning of the sections where passing is prohibited and PASS WITH CARE signs at the beginning of sections where passing is permitted.
7. All work zone pavement markings shall be installed in accordance with Item 662, "Work Zone Pavement Markings."

RAISED PAVEMENT MARKERS

1. Raised pavement markers are to be placed according to the patterns on BC(12).
2. All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and Departmental Material Specification DMS-4200 or DMS-4300.

PREFABRICATED PAVEMENT MARKINGS

1. Removable prefabricated pavement markings shall meet the requirements of DMS-8241.
2. Non-removable prefabricated pavement markings (foil back) shall meet the requirements of DMS-8240.

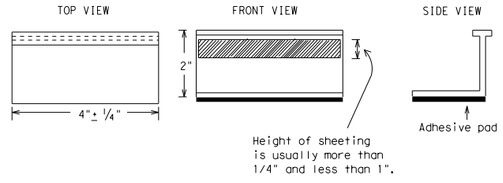
MAINTAINING WORK ZONE PAVEMENT MARKINGS

1. The Contractor will be responsible for maintaining work zone pavement markings within the work limits.
2. Work zone pavement markings shall be inspected in accordance with the frequency and reporting requirements of work zone traffic control device inspections as required by Form 599.
3. The markings should provide a visible reference for a minimum distance of 300 feet during normal daylight hours and 160 feet when illuminated by automobile low-beam headlights at night, unless sight distance is restricted by roadway geometrics.
4. Markings failing to meet this criteria within the first 30 days after placement shall be replaced at the expense of the Contractor as per Specification Item 662.

REMOVAL OF PAVEMENT MARKINGS

1. Pavement markings that are no longer applicable, could create confusion or direct a motorist toward or into the closed portion of the roadway shall be removed or obliterated before the roadway is opened to traffic.
2. The above shall not apply to detours in place for less than three days, where flaggers and/or sufficient channelizing devices are used in lieu of markings to outline the detour route.
3. Pavement markings shall be removed to the fullest extent possible, so as not to leave a discernable marking. This shall be by any method approved by TxDOT Specification Item 677 for "Eliminating Existing Pavement Markings and Markers".
4. The removal of pavement markings may require resurfacing or seal coating portions of the roadway as described in Item 677.
5. Subject to the approval of the Engineer, any method that proves to be successful on a particular type pavement may be used.
6. Blast cleaning may be used but will not be required unless specifically shown in the plans.
7. Over-painting of the markings SHALL NOT BE permitted.
8. Removal of raised pavement markers shall be as directed by the Engineer.
9. Removal of existing pavement markings and markers will be paid for directly in accordance with Item 677, "ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS," unless otherwise stated in the plans.
10. Black-out marking tape may be used to cover conflicting existing markings for periods less than two weeks when approved by the Engineer.

Temporary Flexible-Reflective Roadway Marker Tabs



STAPLES OR NAILS SHALL NOT BE USED TO SECURE TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS TO THE PAVEMENT SURFACE

1. Temporary flexible-reflective roadway marker tabs used as guidemarks shall meet the requirements of DMS-8242.
2. Tabs detailed on this sheet are to be inspected and accepted by the Engineer or designated representative. Sampling and testing is not normally required, however at the option of the Engineer, either "A" or "B" below may be imposed to assure quality before placement on the roadway.
   A. Select five (5) or more tabs at random from each lot or shipment and submit to the Construction Division, Materials and Pavement Section to determine specification compliance.
   B. Select five (5) tabs and perform the following test. Affix five (5) tabs at 24 inch intervals on an asphaltic pavement in a straight line. Using a medium size passenger vehicle or pickup, run over the markers with the front and rear tires at a speed of 35 to 40 miles per hour, four (4) times in each direction. No more than one (1) out of the five (5) reflective surfaces shall be lost or displaced as a result of this test.
3. Small design variances may be noted between tab manufacturers.
4. See Standard Sheet WZ(STPM) for tab placement on new pavements. See Standard Sheet TCP(7-1) for tab placement on seal coat work.

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

1. Raised pavement markers used as guidemarks shall be from the approved product list, and meet the requirements of DMS-4200.
2. All temporary construction raised pavement markers provided on a project shall be of the same manufacturer.
3. Adhesive for guidemarks shall be bituminous material hot applied or butyl rubber pad for all surfaces, or thermoplastic for concrete surfaces.

Guidemarks shall be designated as:
YELLOW - (two amber reflective surfaces with yellow body).
WHITE - (one silver reflective surface with white body).

DEPARTMENTAL MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
TRAFFIC BUTTONS	DMS-4300
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240
TEMPORARY REMOVABLE, PREFABRICATED PAVEMENT MARKINGS	DMS-8241
TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS	DMS-8242

A list of prequalified reflective raised pavement markers, non-reflective traffic buttons, roadway marker tabs and other pavement markings can be found at the Material Producer List web address shown on BC(1).

Texas Department of Transportation | Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-14

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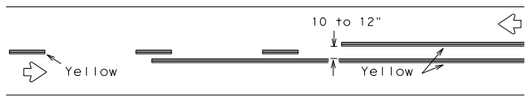
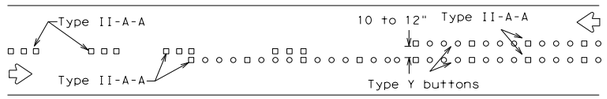
EXHIBIT B

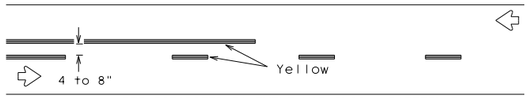
PAVEMENT MARKING PATTERNS



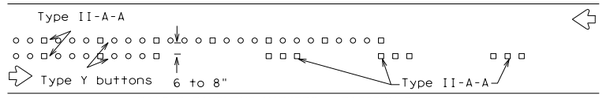
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



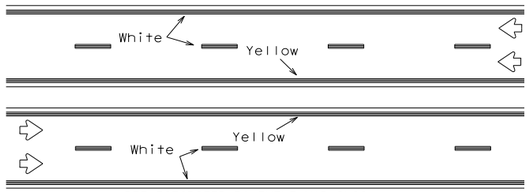
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



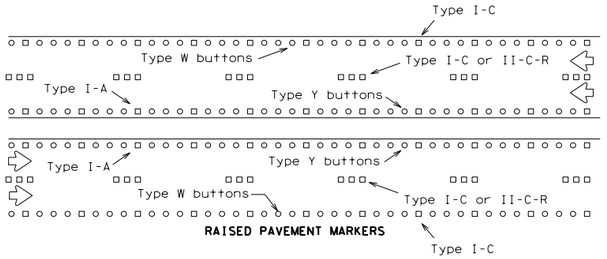
RAISED PAVEMENT MARKERS - PATTERN B

Pattern A is the TXDOT Standard, however Pattern B may be used if approved by the Engineer.
Prefabricated markings may be substituted for reflectorized pavement markings.

CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO-LANE, TWO-WAY HIGHWAYS



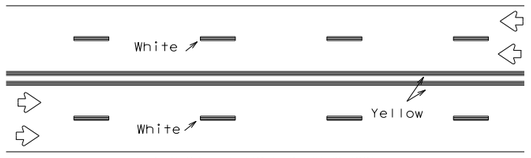
REFLECTORIZED PAVEMENT MARKINGS



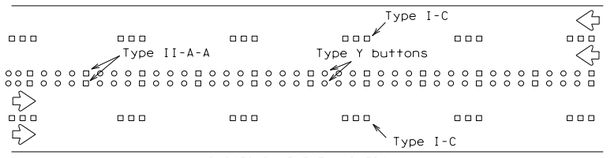
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



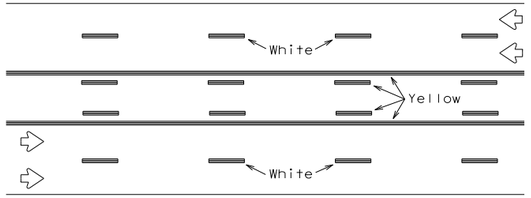
REFLECTORIZED PAVEMENT MARKINGS



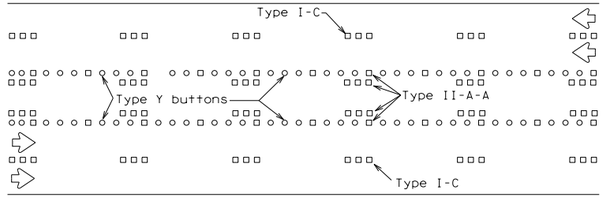
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

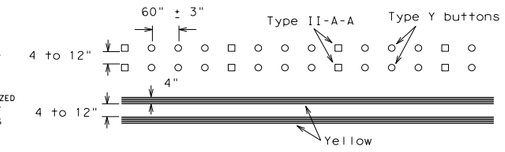
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

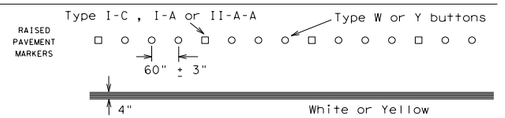
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

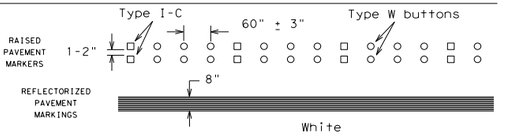


EDGE LINE OR SINGLE NO-PASSING LINE



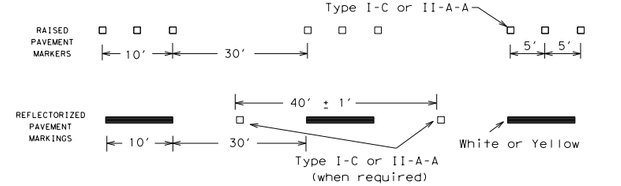
WIDE LINE

(FOR LEFT TURN CHANNELIZING LINE OR CHANNELIZING LINE USED TO DISCOURAGE LANE CHANGING.)

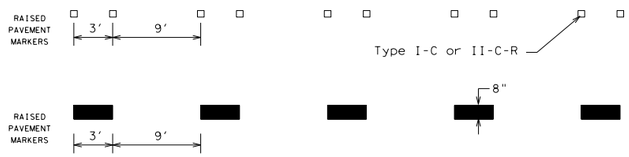


BROKEN LINES

CENTER LINE OR LANE LINE

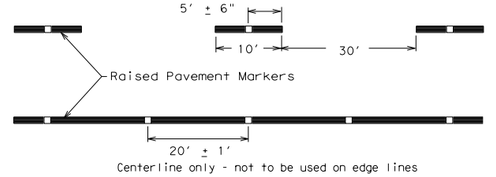


AUXILIARY OR LANEDROP LINE



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

If raised pavement markers are used to supplement REMOVABLE markings, the markers shall be applied to the top of the tape at the approximate mid length of tape used for broken lines or at 20 foot spacing for solid lines. This allows an easier removal of raised pavement markers and tape.



Centerline only - not to be used on edge lines

SHEET 12 OF 12

Raised pavement markers used as standard pavement markings shall be from the approved products list and meet the requirements of Item 672 "RAISED PAVEMENT MARKERS."

Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS				
1-97 9-07				
2-98 7-13	DIST	COUNTY		SHEET NO.
11-02 8-14	DAL	DALLAS		18

106

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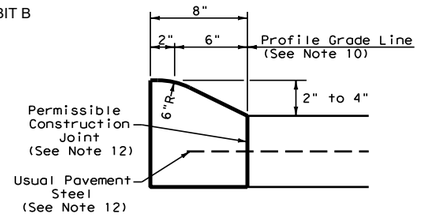
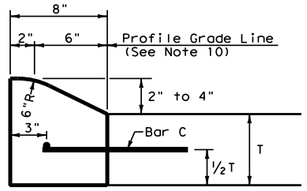


TYPE I CURB (MONOLITHIC)
2" - 4" HEIGHT



TYPE I CURB
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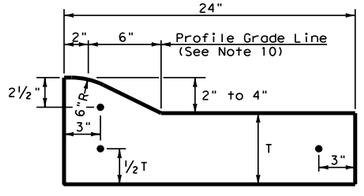
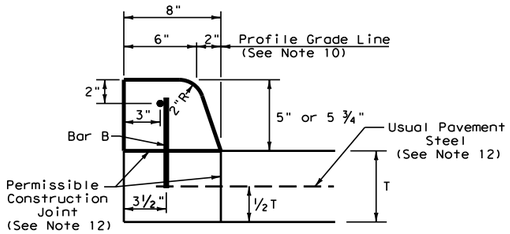
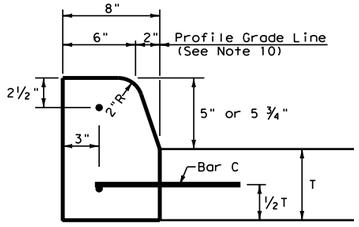


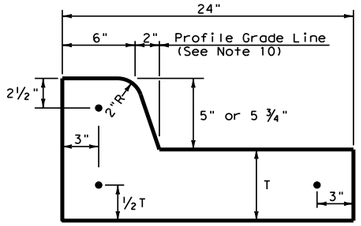
TYPE I CURB AND GUTTER
2" - 4" HEIGHT



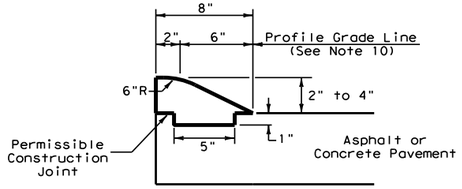
TYPE II CURB (MONOLITHIC)
5" - 5 ¾" HEIGHT



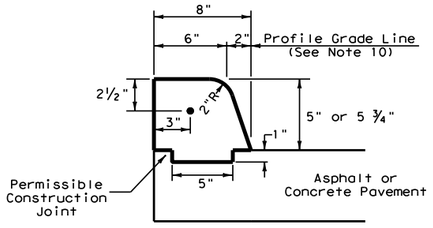
TYPE II CURB
5" - 5 ¾" HEIGHT



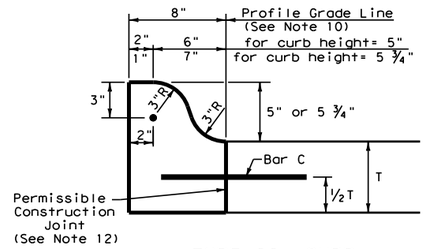
TYPE II CURB AND GUTTER
5" - 5 ¾" HEIGHT



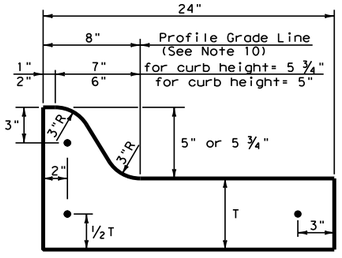
TYPE III CURB (KEYED)
2" - 4" HEIGHT



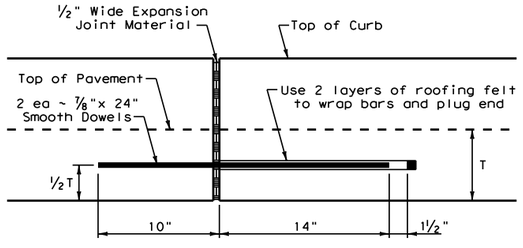
TYPE IV CURB (KEYED)
5" - 5 ¾" HEIGHT



TYPE IIa CURB
5" - 5 ¾" HEIGHT

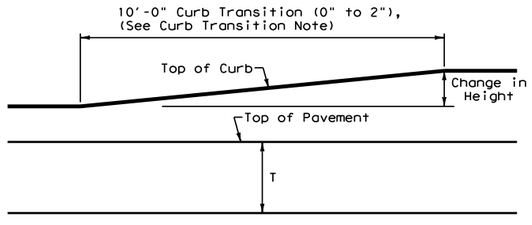


TYPE IIa CURB AND GUTTER
5" - 5 ¾" HEIGHT



EXPANSION JOINT DETAIL

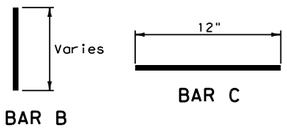
Curb Transition Note:
Field conditions may require a longer or shorter transition, and shall be shown elsewhere in the plans, or as directed by the Engineer.



CURB TRANSITION
Note: To be paid for as Highest Curb

General Notes

1. All materials and construction shall be in accordance with Item 529, "Concrete Curb, Gutter, and Combined Curb and Gutter."
2. Concrete shall be Class A.
3. When reinforcing bars are used, they shall be No. 4 unless otherwise shown. The use of synthetic fiber in lieu of steel reinforcing is acceptable, provided the fiber producer is on the Department Producer List (MPL), maintained by TxDOT, Construction Division.
4. Round exposed sharp edges with a rounding tool, to a minimum radius of ¼ inch.
5. All existing curbs and driveways to be removed shall be sawed or removed at existing joints.
6. Where concrete curb is placed on existing concrete pavement, the pavement shall be drilled and the reinforcing bars grouted in place.
7. Expansion and contraction joints shall be constructed to match pavement joints in all curbs and curb and gutter adjacent to jointed concrete pavement. Where placement of curb or curb and gutter is not adjacent to concrete pavement, expansion joints shall be provided at structures, curb returns at streets, and at locations directed by The Engineer.
8. Vertical and horizontal dowel bars and transverse reinforcing bars shall be placed at four feet C-C.
9. Dimension 'T' shown is the thickness of concrete pavement. When curb is installed adjacent to flexible pavement dimension 'T' is 8" maximum.
10. Usual profile grade line. Refer to typical sections and plan-profile sheets for exact locations.
11. One-half inch expansion joint material shall be provided where curb or curb and gutter is adjacent to sidewalk or riprap.
12. When vertical permissible construction joints are used, resulting in a longitudinal construction joint in the pavement, the longitudinal pavement steel shall be placed in accordance with pavement details shown elsewhere in the plans for longitudinal construction joints. Reinforcing steel for curb section shall then conform to that required for concrete curb.



BAR B BAR C

Texas Department of Transportation — Design Division Standard

CONCRETE CURB AND CURB AND GUTTER

CCCG-12

FILE: cccg12.dgn	DN: TxDOT	CK: AM	DW: VP	CK: VP
© TxDOT: 1995	CONT	SECT	JOB	HIGHWAY
REVISIONS UPDATED 2012 - VP	DIST	COUNTY		SHEET NO.
	DAL	DALLAS		19

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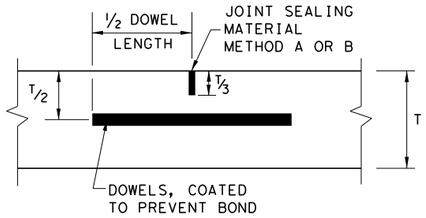
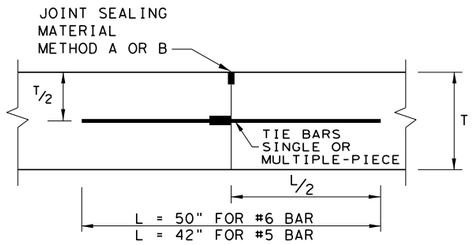
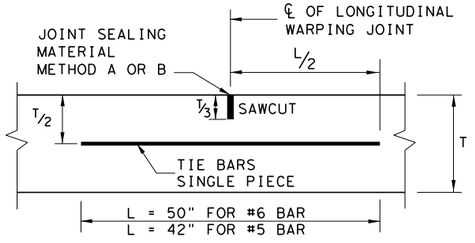


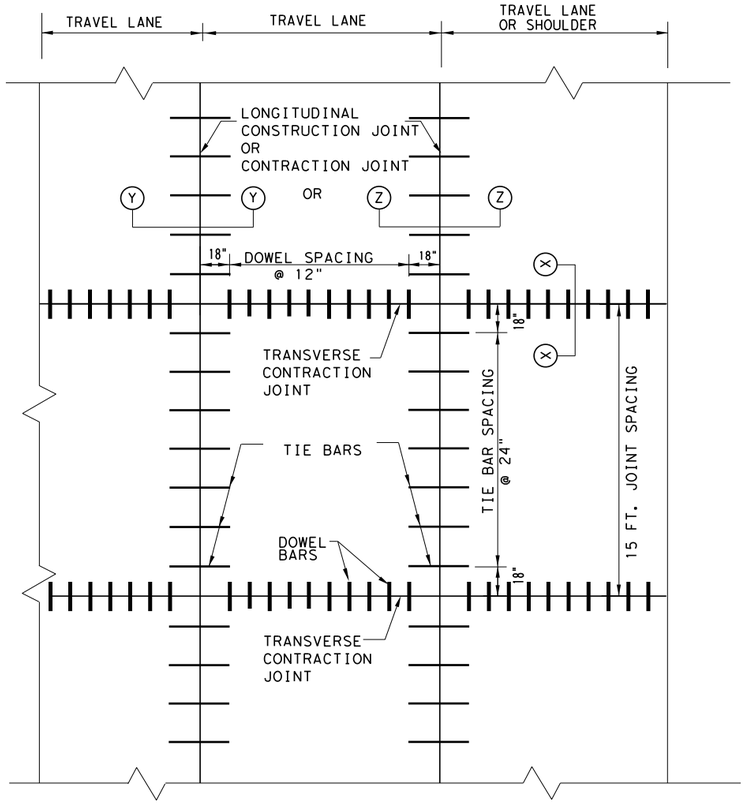
TRANSVERSE CONTRACTION JOINT
SECTION X-X



LONGITUDINAL CONSTRUCTION JOINT
SECTION Y-Y



LONGITUDINAL CONTRACTION JOINT
SECTION Z-Z



TYPICAL PAVEMENT LAYOUT
PLAN VIEW (NOT TO SCALE)

GENERAL NOTES

1. DETAILS FOR PAVEMENT WIDTH, PAVEMENT THICKNESS AND THE CROWN CROSS-SLOPE SHALL BE SHOWN ELSEWHERE IN THE PLANS. PAVEMENTS WIDER THAN 100 FT. WITHOUT A FREE LONGITUDINAL JOINT ARE NOT COVERED BY THIS STANDARD.
2. FOR FURTHER INFORMATION REGARDING THE PLACEMENT OF CONCRETE AND LOAD TRANSFER DEVICES REFER TO THE GOVERNING SPECIFICATION FOR "CONCRETE PAVEMENT".
3. THE SPACING BETWEEN TRANSVERSE CONTRACTION JOINTS SHALL BE 15 FT. UNLESS OTHERWISE SHOWN IN THE PLANS.
4. TRANSVERSE CONSTRUCTION JOINTS MAY BE FORMED BY USE OF METAL OR WOOD FORMS EQUAL IN DEPTH TO THE DEPTH OF PAVEMENT, OR BY METHODS APPROVED BY THE ENGINEER.
5. USE HAND-OPERATED IMMERSION VIBRATORS TO CONSOLIDATE THE CONCRETE ADJACENT TO ALL THE FORMED JOINTS.
6. PAVEMENT WIDTHS OF MORE THAN 15 FT. SHALL HAVE A LONGITUDINAL JOINT (SECTION Z-Z OR SECTION Y-Y). THESE JOINTS SHALL BE LOCATED WITHIN 6 IN. OF THE LANE LINE UNLESS THE JOINT LOCATION IS SHOWN ELSEWHERE ON THE PLANS.
7. THE JOINT BETWEEN OUTSIDE LANE AND SHOULDER SHALL BE A LONGITUDINAL CONTRACTION JOINT (SECTION Z-Z) UNLESS OTHERWISE SHOWN IN THE PLANS. THE SAW CUT DEPTH FOR THE LONGITUDIANL CONTRACTION JOINT (SECTION Z-Z) SHALL BE ONE THIRD OF THE SLABTHICKNESS (T/3).
8. WHEN TYING CONCRETE GUTTER AT A LONGITUDINAL JOINT, THE TIE BAR LENGTH OR POSITION MAY BE ADJUSTED. PROVIDE 3 IN. OF CONCRETE COVER FROM THE BACK OF GUTTER TO THE END OF TIE BAR.
9. REPLACE MISSING OR DAMAGED TIE BARS WITHOUT ADDITIONAL COMPENSATION BY DRILLING MIN. 10 IN. DEEP AND GROUTING TIE BARS WITH TYPE III, CLASS C EPOXY. MEET THE PULL-OUT TEST REQUIREMENTS IN ITEM 361.
10. WHEN AN MONOLITHIIC CURB IS SPECIFIED, THE JOINT IN THE CURB SHALL COINCIDE WITH PAVEMENT JOINTS AND MAY BE FORMED BY ANY MEANS APPROVED BY THE ENGINEER.
11. DOWEL BAR PLACEMENT TOLERANCE SHALL BE +/- 1/4 IN. HORIZONTALLY AND VERTICALLY UNLESS OTHERWISE SPECIFIED. WHERE DOWEL BAR BASKETS ARE USED, REMOVE THE SHIPPING WIRES.
12. THE DETAIL FOR JOINT SEALANT AND RESERVOIR IS SHOWN ON STANDARD SHEET "CONCRETE PAVING DETAILS, JOINT SEALS."

TABLE NO. 1 DOWELS (SMOOTH BARS)		
SLAB THICKNESS T (IN.)	BAR DIA. AND LENGTH	AVERAGE SPACING (IN.)
6 to 7.5	1" X 18"	12
8 to 10	1 1/4" X 18"	12
>= 10.5	1 1/2" X 18"	12

TABLE NO. 2 TIE BARS (DEFORMED BARS)		
SLAB THICKNESS T (IN.)	BAR SIZE	AVERAGE SPACING (IN.)
6 to 7.5	#5	24
>= 8	#6	24

DATE:
FILE:

SHEET 1 OF 2

Texas Department of Transportation — Design Division Standard

CONCRETE PAVEMENT DETAILS
CONTRACTION DESIGN
T-6 to 12 INCHES

CPCD-14

FILE: cpcd14.dgn	DN: TxDOT	DN: HC	DW: HC	CK: AN
© TxDOT: DECEMBER 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.
	DAL	DALLAS		20

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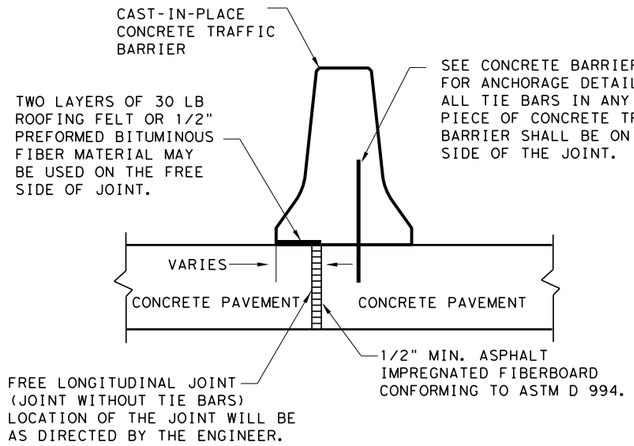
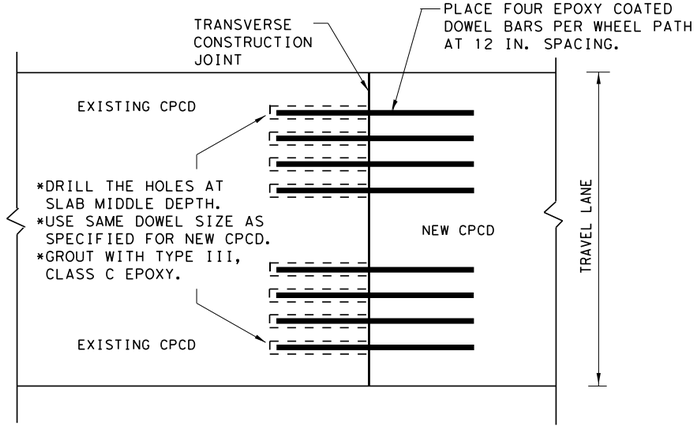


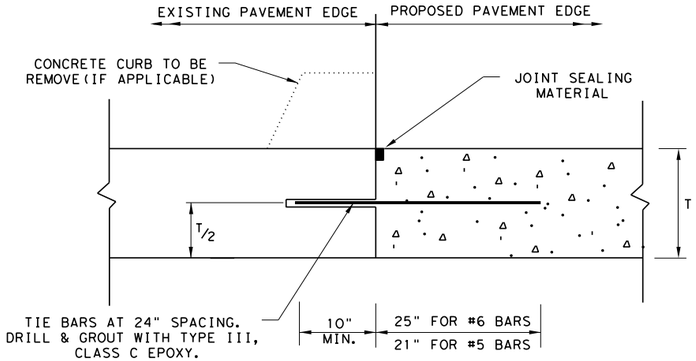
FREE LONGITUDINAL JOINT DETAIL



TRANSVERSE JOINT DETAIL

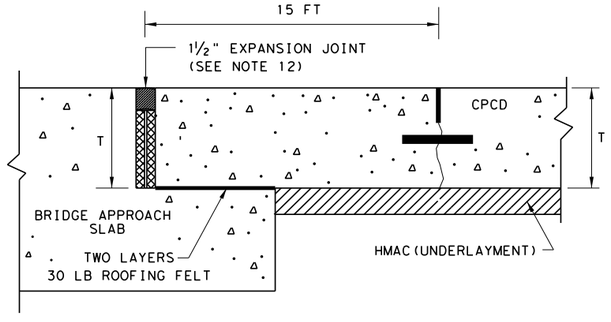
EXISTING CPCD TO NEW CPCD

PLAN VIEW (NOT TO SCALE)



1. BEFORE WIDENING WORK, DEMONSTRATE THAT THE BOND STRENGTH OF THE EPOXY-GROUTED TIE BARS MEETS THE REQUIREMENTS OF PULL-OUT TEST SPECIFIED IN ITEM 361.
2. SPACE TIE BARS AT 24" SPACING. USE #6 BARS FOR 8" AND THICKER SLABS, USE #5 BARS FOR LESS THAN 8" THICK SLABS.
3. THE TRANSVERSE JOINTS OF PROPOSED PAVEMENT SHALL COINCIDE WITH EXISTING PAVEMENT JOINTS UNLESS OTHERWISE SHOWN ON THE PLANS.

LONGITUDINAL WIDENING JOINT DETAIL



TRANSVERSE EXPANSION JOINT DETAIL

AT BRIDGE APPROACH

SHEET 2 OF 2

Texas Department of Transportation — Design Division Standard

CONCRETE PAVEMENT DETAILS
CONTRACTION DESIGN
T-6 to 12 INCHES

CPCD-14

FILE: cpcd14.dgn	DN: TxDOT	DN: HC	DW: HC	CK: AN
© TxDOT: DECEMBER 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.
	DAL	DALLAS		21

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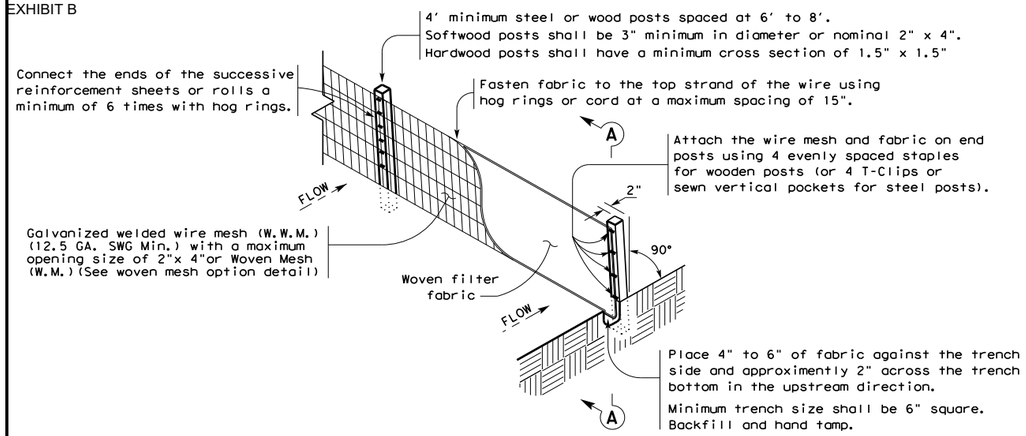
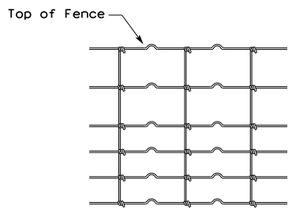
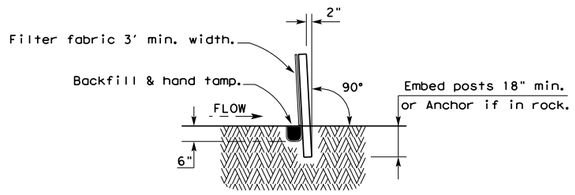


TEMPORARY SEDIMENT CONTROL FENCE

SCF





SECTION A-A

HINGE JOINT KNOT WOVEN MESH (OPTION) DETAIL

Galvanized hinge joint knot woven mesh (12.5 GA.SWG Min.) requires a minimum of five horizontal wires spaced at a maximum of 12 inches apart and all vertical wires spaced at a maximum of 12 inches apart.

SEDIMENT CONTROL FENCE USAGE GUIDELINES

A sediment control fence may be constructed near the downstream perimeter of a disturbed area along a contour to intercept sediment from overland runoff. A 2 year storm frequency may be used to calculate the flow rate to be filtered.

Sediment control fence should be sized to filter a maximum flow through rate of 100 GPM/FT^2. Sediment control fence is not recommended to control erosion from a drainage area larger than 2 acres.

LEGEND

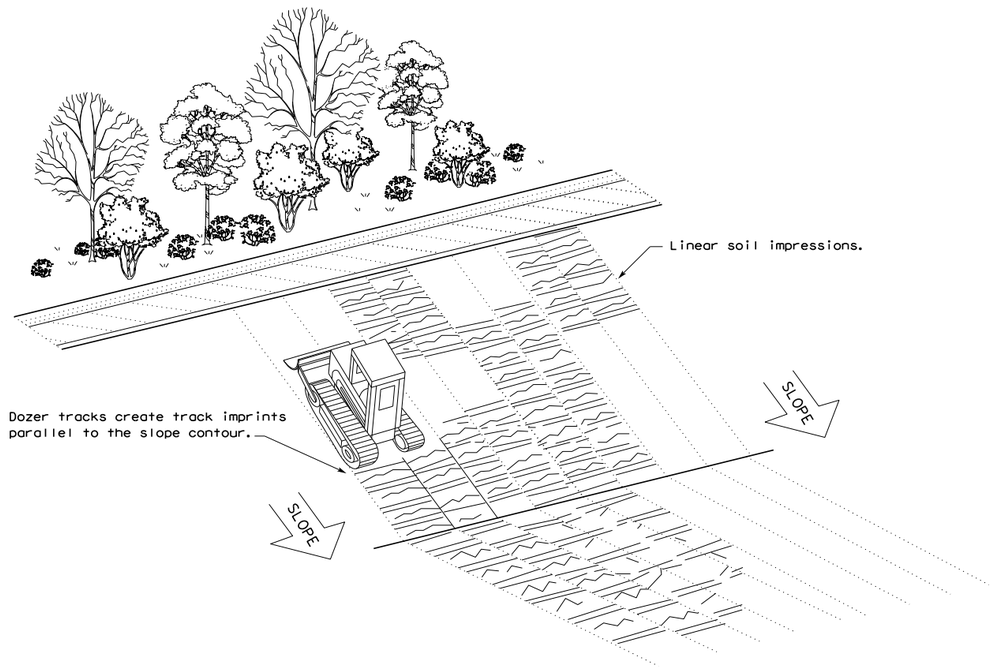
Sediment Control Fence

SCF

DATE
FILE

GENERAL NOTES

1. Vertical tracking is required on projects where soil distributing activities have occurred unless otherwise approved.
2. Perform vertical tracking on slopes to temporarily stabilize soil.
3. Provide equipment with a track undercarriage capable of producing linear soil impressions measuring a minimum of 12" in length by 2" to 4" in width by 1/2" to 2" in depth.
4. Do not exceed 12" between track impressions.
5. Install continous linear track impressions where the minimum 12" length impressions are perpendicular to the slope or direction of water flow.



VERTICAL TRACKING

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

FENCE & VERTICAL TRACKING

EC(1)-16

FILE: ec116	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS
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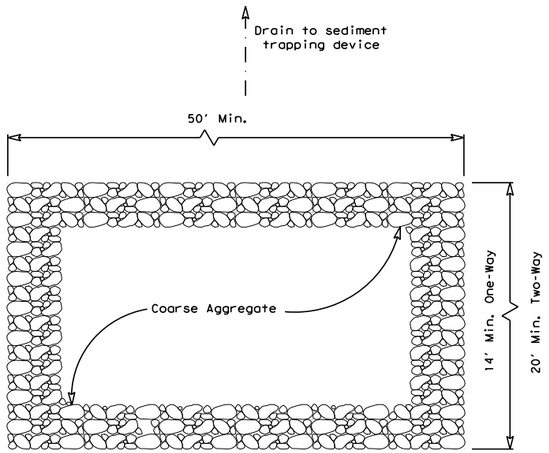
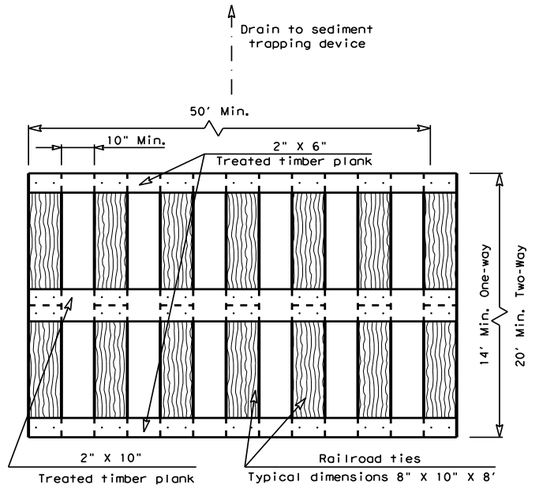
	DIST	COUNTY		SHEET NO.
	DAL	DALLAS		22

EXHIBIT B



PLAN VIEW



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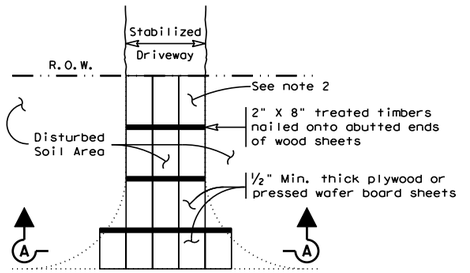

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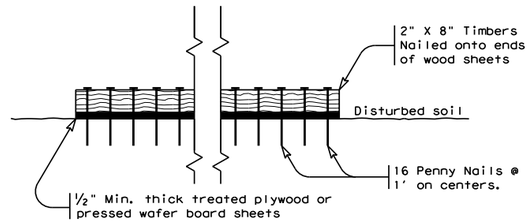
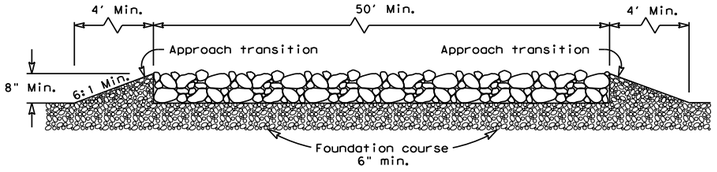


SECTION A-A

CONSTRUCTION EXIT (TYPE 3)

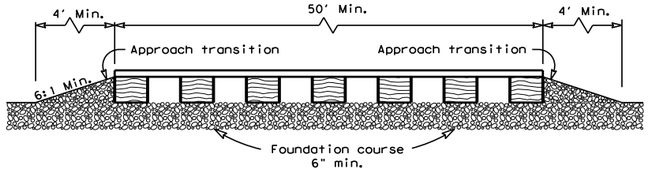
SHORT TERM



ELEVATION VIEW

CONSTRUCTION EXIT (TYPE 1)

ROCK CONSTRUCTION (LONG TERM)



ELEVATION VIEW

CONSTRUCTION EXIT (TYPE 2)

TIMBER CONSTRUCTION (LONG TERM)

GENERAL NOTES (TYPE 1)

1. The length of the type 1 construction exit shall be as indicated on the plans, but not less than 50'.
2. The coarse aggregate should be open graded with a size of 4" to 8".
3. The approach transitions should be no steeper than 6:1 and constructed as directed by the Engineer.
4. The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other materialas approved by the Engineer.
5. The construction exit shall be graded to allow drainage to a sediment trapping device.
6. The guidelines shown hereon are suggestions only and may be modified by the Engineer.
7. Construct exits with a width of at least 14 ft. for one-way and 20 ft. for two-way traffic for the full width of the exit, or as directed by the engineer.

GENERAL NOTES (TYPE 2)

1. The length of the type 2 construction exit shall be as indicated on the plans, but not less than 50'.
2. The treated timber planks shall be attached to the railroad ties with ½"x 6" min. lag bolts. Other fasteners may be used as approved by the Engineer.
3. The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
4. The approach transitions shall be no steeper than 6:1 and constructed as directed by the Engineer.
5. The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other material as approved by the Engineer.
6. The construction exit should be graded to allow drainage to a sediment trapping device.
7. The guidelines shown hereon are suggestions only and may be modified by the Engineer.
8. Construct exits with a width of at least 14 ft. for one-way and 20 ft. for two-way traffic for the full width of the exit, or as directed by the engineer.

GENERAL NOTES (TYPE 3)

1. The length of the type 3 construction exit shall be as shown on the plans, or as directed by the Engineer.
2. The type 3 construction exit may be constructed from open graded crushed stone with a size of two to four inches spread a min. of 4" thick to the limits shown on the plans.
3. The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
4. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

CONSTRUCTION EXITS

EC(3)-16

FILE: ec316	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS
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	DIST	COUNTY		SHEET NO.
	DAL	DALLAS		23.

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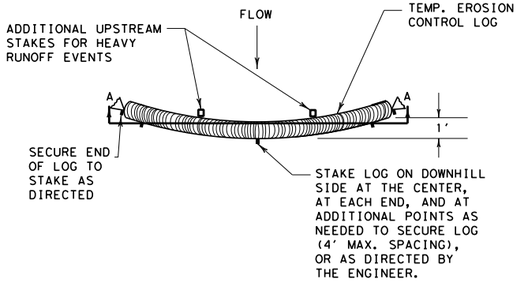
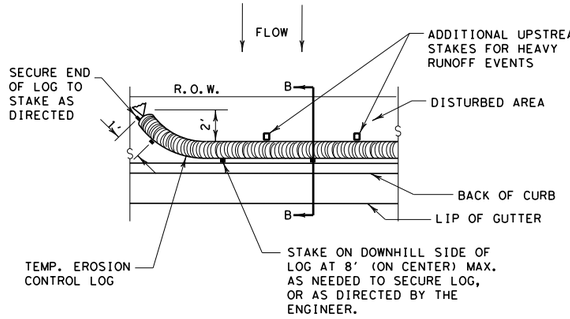
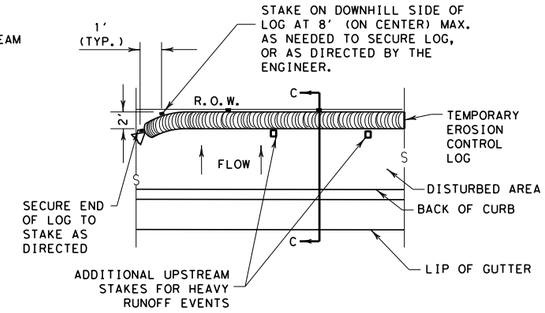


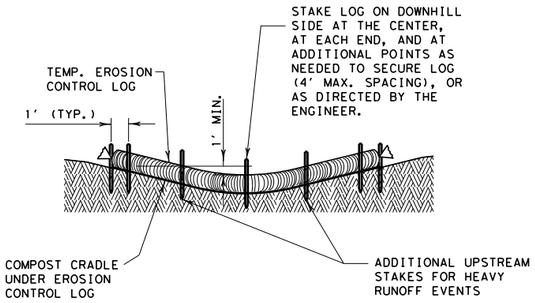
PLAN VIEW



PLAN VIEW



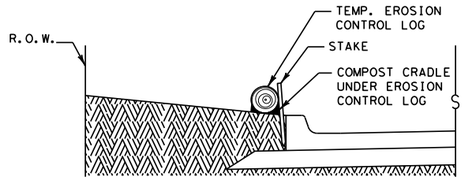
PLAN VIEW



SECTION A-A

EROSION CONTROL LOG DAM

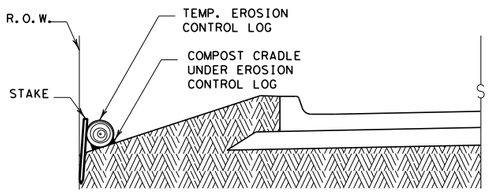
CL-D



SECTION B-B

EROSION CONTROL LOG AT BACK OF CURB

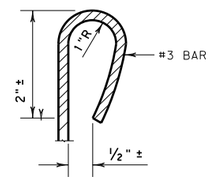
CL-BOC



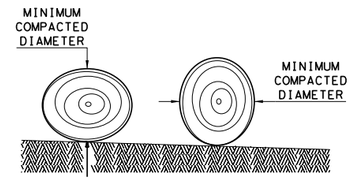
SECTION C-C

EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY

CL-ROW



REBAR STAKE DETAIL



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

GENERAL NOTES:

1. EROSION CONTROL LOGS SHALL BE INSTALLED IN ACCORDANCE WITH MANFACTURER'S RECOMMENDATIONS, OR AS DIRECTED BY THE ENGINEER.
2. LENGTHS OF EROSION CONTROL LOGS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS REQUIRED FOR THE PURPOSE INTENDED.
3. UNLESS OTHERWISE DIRECTED, USE BIODEGRADABLE OR PHOTODEGRADABLE CONTAINMENT MESH ONLY WHERE LOG WILL REMAIN IN PLACE AS PART OF A VEGETATIVE SYSTEM. FOR TEMPORARY INSTALLATIONS, USE RECYCLABLE CONTAINMENT MESH.
4. FILL LOGS WITH SUFFICIENT FILTER MATERIAL TO ACHIEVE THE MINIMUM COMPACTED DIAMETER SPECIFIED IN THE PLANS WITHOUT EXCESSIVE DEFORMATION.
5. STAKES SHALL BE 2" X 2" WOOD OR #3 REBAR, 2'-4' LONG, EMBEDDED SUCH THAT 2" PROTRUDES ABOVE LOG, OR AS DIRECTED BY THE ENGINEER.
6. DO NOT PLACE STAKES THROUGH CONTAINMENT MESH.
7. COMPOST CRADLE MATERIAL IS INCIDENTAL & WILL NOT BE PAID FOR SEPARATELY.
8. SANDBAGS USED AS ANCHORS SHALL BE PLACED ON TOP OF LOGS & SHALL BE OF SUFFICIENT SIZE TO HOLD LOGS IN PLACE.
9. TURN THE ENDS OF EACH ROW OF LOGS UPSLOPE TO PREVENT RUNOFF FROM FLOWING AROUND THE LOG.
10. FOR HEAVY RUNOFF EVENTS, ADDITIONAL UPSTREAM STAKES MAY BE NECESSARY TO KEEP LOG FROM FOLDING IN ON ITSELF.

LEGEND

CL-D	EROSION CONTROL LOG DAM
CL-BOC	EROSION CONTROL LOG AT BACK OF CURB
CL-ROW	EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY
CL-SST	EROSION CONTROL LOGS ON SLOPES STAKE AND TRENCHING ANCHORING
CL-SSL	EROSION CONTROL LOGS ON SLOPES STAKE AND LASHING ANCHORING
CL-DI	EROSION CONTROL LOG AT DROP INLET
CL-CI	EROSION CONTROL LOG AT CURB INLET
CL-GI	EROSION CONTROL LOG AT CURB & GRATE INLET

SEDIMENT BASIN & TRAP USAGE GUIDELINES

An erosion control log sediment trap may be used to filter sediment out of runoff draining from an unstabilized area.

Log Traps: The drainage area for a sediment trap should not exceed 5 acres. The trap capacity should be 1800 CF/Acre (0.5" over the drainage area).

Control logs should be placed in the following locations:
1. Within drainage ditches spaced as needed or min. 500' on center
2. Immediately preceding ditch inlets or drain inlets
3. Just before the drainage enters a water course
4. Just before the drainage leaves the right of way
5. Just before the drainage leaves the construction limits where drainage flows away from the project.

The logs should be cleaned when the sediment has accumulated to a depth of 1/2 the log diameter.

Cleaning and removal of accumulated sediment deposits is incidental and will not be paid for separately.

SHEET 1 OF 3

Texas Department of Transportation | Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)-16

FILE: ec916		DN: TxDOT		CK: KM	DW: LS/PT		CK: LS
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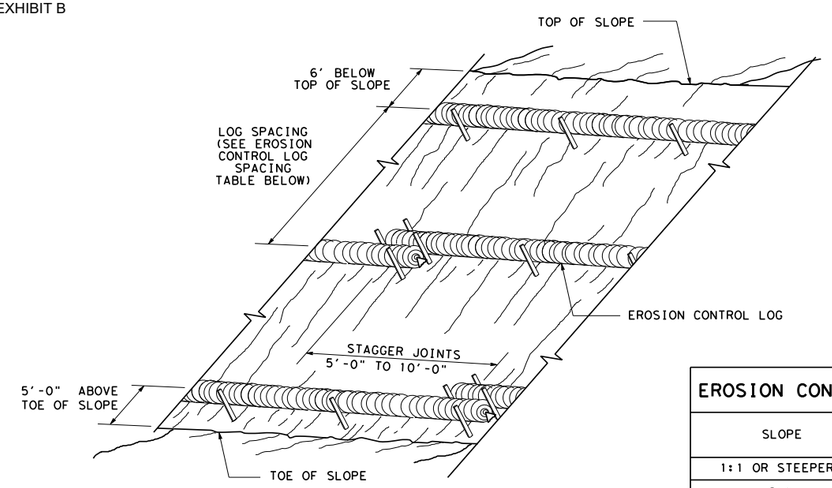
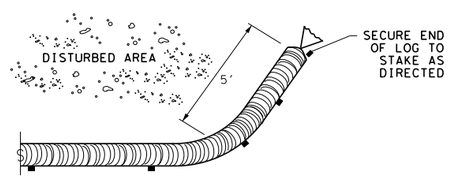
		DIST	COUNTY			SHEET NO.	
		DAL	DALLAS			24	

EXHIBIT B



EROSION CONTROL LOGS ON SLOPES
STAKE AND TRENCHING ANCHORING

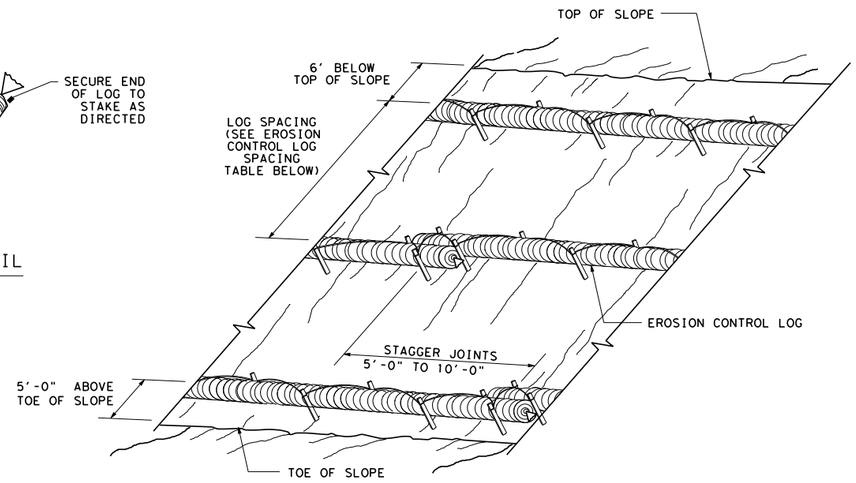
CL-SST



END SECTION RAP DETAIL

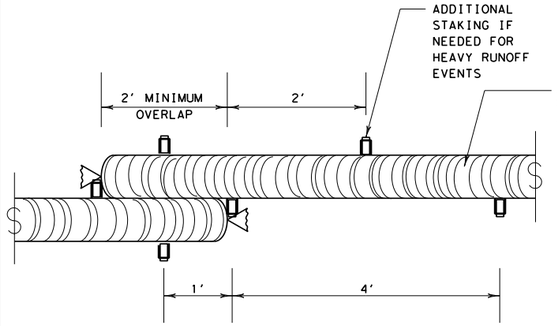
EROSION CONTROL LOG SPACING TABLE				
SLOPE	LOG DIAMETER			
	6"	8"	12"	18"
1:1 OR STEEPER	5'	10'	15'	20'
2:1	10'	20'	30'	40'
3:1	15'	30'	45'	60'
4:1 OR FLATTER	20'	40'	60'	80'

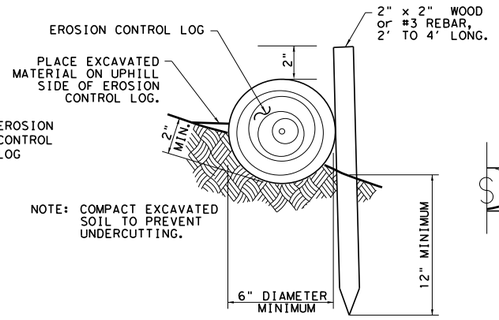
* ADJUSTMENTS CAN BE MADE FOR SOIL TYPE:
SOFT, LOAMY SOILS-ADJUST ROWS CLOSER TOGETHER;
HARD, ROCKY SOILS- ADJUST ROWS FARTHER APART



EROSION CONTROL LOGS ON SLOPES
STAKE AND LASHING ANCHORING

CL-SSL

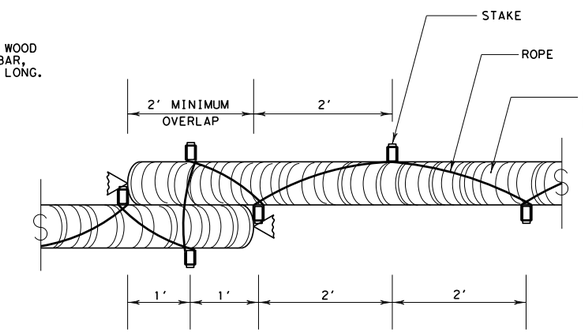


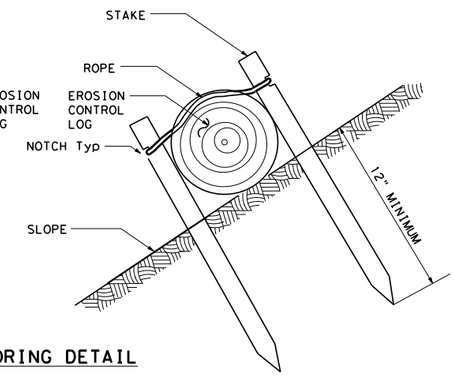


STAKE AND TRENCHING ANCHORING DETAIL

CL-SST

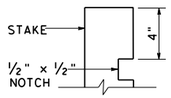
TRENCH DEPTH TABLE	
LOG DIAMETER	DEPTH
6"	2"
8"	3"
12"	4"
18"	5"





STAKE AND LASHING ANCHORING DETAIL

CL-SSL



STAKE NOTCH DETAIL

SHEET 2 OF 3

Texas Department of Transportation | Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)-16

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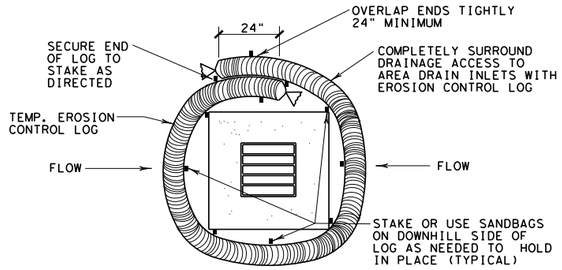
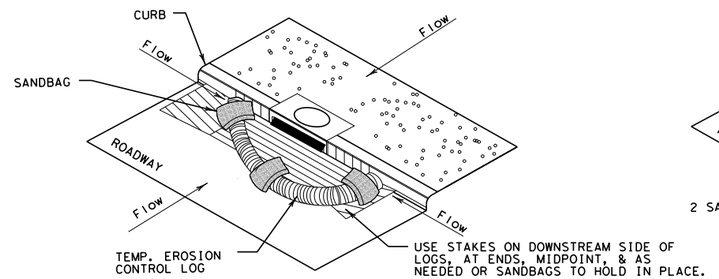


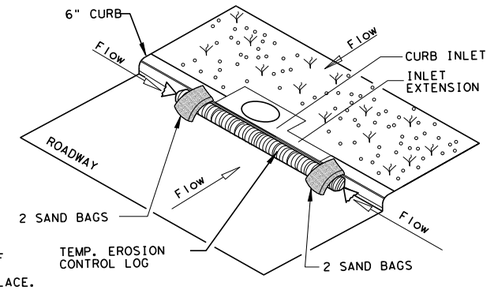
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

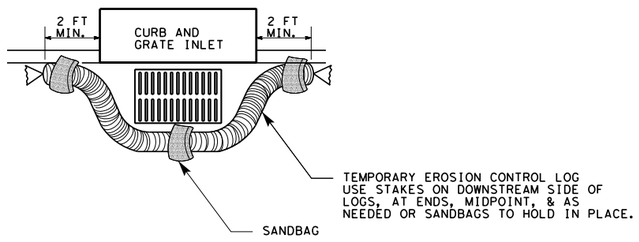
CL-CI



EROSION CONTROL LOG AT CURB INLET

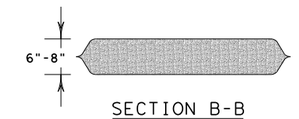
CL-CI

NOTE:
EROSION CONTROL LOGS USED AT CURB INLETS SHOULD ONLY BE USED IF THEY WILL NOT IMPEDE TRAFFIC OR FLOOD THE ROADWAY OR WHEN THE STORM SEWER SYSTEM IS NOT FULLY FUNCTIONAL.

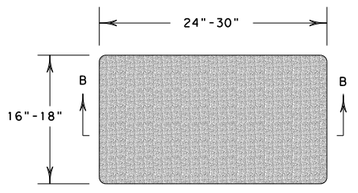


EROSION CONTROL LOG AT CURB & GRADE INLET

CL-GI



SECTION B-B



SANDBAG DETAIL

SHEET 3 OF 3

Texas Department of Transportation | Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)-16

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EXHIBIT B

GENERAL NOTES FOR ALL ELECTRICAL WORK

1. The location of all conduits, junction boxes, ground boxes, and electrical services is diagrammatic and may be shifted to accommodate field conditions.

2. Provide new and unused materials. Ensure that all materials and installations comply with the applicable articles of the National Electrical Code (NEC), TxDOT standards and specifications, National Electrical Manufacturers Association (NEMA), and are listed by Underwriters Laboratories (UL) or a Nationally Recognized Testing Lab (NRTL). NRTLs such as Canadian Standard Association (CSA), Intertek Testing Services NA Inc., or FM Approvals LLC can be considered equivalent to UL. Where reference is made to NEMA listed devices, International Electrotechnical Commission (IEC) listed devices will not be considered an acceptable equal to a NEMA listed device. Acceptable devices may have both a NEMA and IEC listing. Faulty fabrication or poor workmanship in any material, equipment, or installation is justification for rejection. Replace or reinstall rejected material or equipment at no additional cost to the Department.

3. Miscellaneous nuts, bolts and hardware, except for high strength bolts, may be stainless steel when plans specify galvanized, provided the bolt size is ½ in. or less in diameter.

4. Provide the following test equipment as required by the Engineer to confirm compliance with the contract and the NEC: voltmeter, ammeter, megohm meter (1000 volt DC), ground resistance tester, torque wrenches, and torque screwdrivers. Ensure all equipment has been properly calibrated within the last year. Provide calibration certification to the Engineer upon request. Operate test equipment during inspection as requested by the Engineer.

5. Install grounding as shown on the plans and in accordance with the NEC. Ensure all metallic conduits; metal poles; luminaires; and metal enclosures are bonded to the equipment grounding conductor. Provide stranded bare copper or green insulated grounding conductors. Ground rods, connectors, and bonding jumpers are subsidiary to the various bid items.

6. When required by the Engineer, notify the Department in writing of materials from the Material Producers List (MPL) intended for use on each project. Prequalified materials are listed on the MPL on TxDOT's website under "Roadway Illumination and Electrical Supplies." No substitutions will be allowed for materials on this list.

CONDUIT

A. MATERIALS

1. Provide conduit, junction boxes, fittings, and hardware as per TxDOT Departmental Material Specification (DMS) 11030 "Conduit" and Item 618 "Conduit" of TxDOT's "Standard Specifications For Construction And Maintenance Of Highways, Streets, And Bridges," latest edition. Provide conduits listed under Item 618 on the MPL under "Roadway Illumination and Electrical Supplies." Provide conduit types according to the descriptive code or as shown on the plans. Do not substitute other types of conduits for those shown. Provide liquidtight flexible metal conduit (LFMC) when flexible conduit is called for on galvanized steel rigid metallic conduit (RMC) systems. Provide liquidtight flexible nonmetallic conduit (LFNC) when flexible conduit is called for on polyvinyl chloride (PVC) systems.

2. Provide galvanized steel RMC for all exposed conduits, unless otherwise shown on the plans. Properly bond all metal conduits.

3. Unless otherwise shown on the plans, provide junction boxes with a minimum size as shown in the following table, which applies to the greatest number of conductors entering the box through one conduit with no more than four conduits per box. When a mixture of conductor sizes is present, count the conductors as if all are of the larger size. For situations not applicable to the table, size junction boxes in accordance with NEC.

AWG	3 CONDUCTORS	5 CONDUCTORS	7 CONDUCTORS
#1	10" x 10" x 4"	12" x 12" x 4"	16" x 16" x 4"
#2	8" x 8" x 4"	10" x 10" x 4"	12" x 12" x 4"
#4	8" x 8" x 4"	10" x 10" x 4"	10" x 10" x 4"
#6	8" x 8" x 4"	8" x 8" x 4"	10" x 10" x 4"
#8	8" x 8" x 4"	8" x 8" x 4"	8" x 8" x 4"

4. Junction boxes with an internal volume of less than 100 cu. in. and supported by entering raceways must have threaded entries or hubs identified for the intended purpose and supported by connection of two or more rigid metal conduits. Secure conduit within 3 ft. of the enclosure or within 18 in. of the enclosure if all conduit entries are on the same side. Mechanically secure all junction boxes with an internal volume greater than 100 cu. inches.

5. Provide hot dipped galvanized cast iron or sand cast aluminum outlet boxes for junction boxes containing only 10 AWG or 12 AWG conductors. Do not use die cast aluminum boxes. Size outlet boxes according to the NEC.

6. Do not use intermediate metal conduit (IMC) or electrical metallic tubing (EMT) unless specifically required by the plan sheets. When EMT is called for, provide junction boxes made from galvanized steel sheeting, listed and approved for outdoor use, unless otherwise noted on the plans. Size all galvanized steel junction boxes in accordance with the NEC. Provide junction boxes for IMC conduit systems that meet the same requirements for junction boxes used with RMC systems.

7. Provide PVC junction boxes intended for outdoor use on PVC conduit systems, unless otherwise noted on the plans.

8. Provide PVC elbows in PVC conduit systems, unless otherwise shown on the plans. Use only a flat, high tensile strength polyester fiber pull tape for pulling conductors through the PVC conduit system. When galvanized steel RMC elbows are specifically called for in the plans and any portion of the RMC elbow is buried less than 18 in., ground the RMC elbow by means of a grounding bushing on a rigid metal extension. Grounding of the rigid metal elbow is not required if the entire RMC elbow is encased in a minimum of 2 in. of concrete. PVC extensions are allowed on these concrete encased rigid metal elbows. RMC or PVC elbows are subsidiary to various bid items.

9. When required, provide High-Density Polyethylene (HDPE) conduit with factory installed internal conductors according to Item 622 "Duct Cable." At the Contractor's request and with approval by the Engineer, substitute HDPE conduit with no conductors for bored schedule 40 or schedule 80 PVC conduit bid under Item 618. Ensure bored HDPE substituted for PVC is schedule 40 and of the same size PVC called for in the plans. Ensure the substituted HDPE meets the requirements of Item 622, except that the conduit is supplied without factory-installed conductors. Make the transition of the HDPE conduit to PVC (or RMC elbow when required) at the bore pit. Provide conduit of the size and schedule as shown on the plans. Do not extend substituted conduit into ground boxes or foundations. Provide PVC or galvanized steel RMC elbows as called for at all ground boxes and foundations.

10. Use two-hole straps when supporting 2 in. and larger conduits. On electrical service poles, properly sized stainless steel or hot dipped galvanized one-hole standoff straps are allowed on the service riser conduit.

B. CONSTRUCTION METHODS

1. Provide and install expansion joint conduit fittings on all structure-mounted conduits at the structure's expansion joints to allow for movement of the conduit. In addition, provide and install expansion joint fittings on all continuous runs of galvanized steel RMC conduit externally exposed on structures such as bridges at maximum intervals of 150 ft. When requested by the project Engineer, supply manufacturer's specification sheet for expansion joint conduit fittings. Repair or replace expansion joint fittings that do not allow for movement at no additional cost to the Department. Provide the method of determining the amount of expansion to the Engineer upon request. Do not use LFMC or LFNC as a substitute for the required expansion conduit fittings.

2. Space all conduit supports at maximum intervals of 5 ft. Install conduit spacers when attaching metal conduit to surface of concrete structures. See "Conduit Mounting Options" on ED(2). Install conduit support within 3 ft. of all enclosures and conduit terminations.

3. Do not attach conduit supports directly to pre-stressed concrete beams except as shown specifically in the plans or as approved by the Engineer.

4. Unless otherwise shown on the plans, jack or bore conduit placed beneath existing roadways, driveways, sidewalks, or after the base or surfacing operation has begun. Backfill and compact the bore pits below the conduit per Item 476 "Jacking, Boring, or Tunneling Pipe or Box" prior to installing conduit or duct cable to prevent bending of the connections.

5. When placing conduit in the sub-grade of new roadways, backfill all trenches with excavated material unless otherwise noted on the plans. When placing conduit in the sub-base of new roadways, backfill all trenches with cement-stabilized base as per requirements of Items 110 "Excavation", 400 "Excavation and Backfill for Structures", 401 "Flowable Backfill", 402 "Trench Excavation Protection", and 403 "Temporary Special Shoring."

6. Provide and place warning tape approximately 10 in. above all trenched conduit as per Item 618.

7. During construction, temporarily cap or plug open ends of all conduit and raceways immediately after installation to prevent entry of dirt, debris and animals. Temporary caps constructed of durable duct tape are allowed. Tightly fix the tape to the conduit opening. Clean out the conduit and prove it clear in accordance with Item 618 prior to installing any conductors.

8. Ensure conduit entry into the top of any enclosure is waterproof by installing conduit sealing hubs or using boxes with threaded bosses. This includes surface mounted safety switches, meter cans, service enclosures, auxiliary enclosures and junction boxes. Grounding bushings on water tight sealing hubs are not required.

9. Fit the ends of all PVC conduit terminations with bushings or bell end fittings. Provide and install a grounding type bushing on all metal conduit terminations.

10. Install a bonding jumper from each grounding bushing to the nearest ground rod, grounding lug, or equipment grounding conductor. Ensure all bonding jumpers are the same size as the equipment grounding conductor. Bonding of conduit used as a casing under roadways for duct cable is not required, if the duct extends the full length through the casing.

11. At all electrical services, install a 6 AWG solid copper grounding electrode conductor.

12. Place conduits entering ground boxes so that the conduit openings are between 3 in. and 6 in. from the bottom of the box. See the ground box detail on sheet ED(4).

13. Seal ends of all conduits with duct seal, expandable foam, or by other methods approved by the Engineer. Seal conduit immediately after completion of conductor installation and pull tests. Do not use duct tape as a permanent conduit sealant. Do not use silicone caulk as a conduit sealant.

14. File smooth the cut ends of all mounting strut and conduit. Before installing, paint the field cut ends of all mounting strut and RMC (threaded or non-threaded) with zinc rich paint (94% or more zinc content) to alleviate overspray. Use zinc rich paint to touch up galvanized material as allowed under Item 445 "Galvanizing." Do not paint non-galvanized material with a zinc rich paint as an alternative for materials required to be galvanized.

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ELECTRICAL DETAILS CONDUITS & NOTES

ED(1)-14

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EXHIBIT B

ELECTRICAL CONDUCTORS

A. MATERIAL INFORMATION

1. Provide Type XHHW insulated conductors in accordance with Departmental Material Specification (DMS)11040 "Conductors" and Item 620 "Electrical Conductors." Provide conductors as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies" Item 620. Color code insulated conductors in conformance with the NEC. Identify grounded (neutral) conductors with white insulation. Identify grounding conductors (ground wires) with green insulation or bare conductors. Identify ungrounded (hot) conductors with any color insulation except green, white, or gray. Keep color scheme consistent throughout the wiring system. Identify conductors 6 American Wire Gauge (AWG) and smaller by continuous color jacket. Identify electrical conductors 4 AWG and larger by continuous color jacket or by colored tape. When identifying conductors with colored tape, mark at least 6 in. of the conductor's insulation with half laps of tape.
2. Provide a solid copper 6 AWG grounding electrode conductor to bond the electrical service equipment to the concrete encased grounding electrode or the ground rod at the service location. Connect the grounding electrode conductor to the ground rod with a UL listed connector in accordance with DMS 11040. Connect the grounding electrode conductor to the concrete encased grounding electrode as shown in the plans.
3. Where two or more circuits are present in one conduit or enclosure, permanently identify the conductors of each branch circuit by attaching a non-metallic tag around both circuit conductors at each accessible location. Provide tags with two straps, large enough to indicate circuit number, letter, or other identification as shown in the plans. Print circuit identification on the tag with a permanent marker.
4. Use listed compression or screw type pressure connectors, terminal blocks, or split bolt connectors for splicing as specified in DMS 11040. Use hot melt adhesive tape to fill the gap and seal the ends of heat shrink tubing. Provide UL listed gel-filled insulating splice covers. Splicing materials, insulating materials, breakaway disconnects, splice covers, and fuse holders are subsidiary to various bid items.

B. CONSTRUCTION METHODS

1. Use only a flat, high tensile strength polyester fiber pull tape for pulling conductors through the conduit system. After installing conductors in conduit, perform conductor pull test. If a conductor cannot be freely pulled, make any needed alterations or repairs at no additional cost to the department. Perform insulation resistance tests in accordance with Item 620. Coordinate with the Engineer to witness the tests.
2. Leave 2 ft. minimum, 3 ft. maximum length for each conductor up to the splice in ground boxes. Leave 3 ft. minimum, 4 ft. maximum length of conductor in ground boxes when pulled through with no splice. Leave 1 ft. minimum, 1.5 ft. maximum length of conductor at enclosures, weatherheads and pole bases.
3. Make splices only in junction boxes, ground boxes, pole bases, or electrical enclosures and use only listed compression or screw type pressure connectors, terminal blocks, or split bolt connectors. Insulate splices with heavy wall heat shrink tubing or gel-filled insulating splice covers to provide a watertight splice. Overlap conductor insulation with heat shrink tubing a minimum of 2 in. past both sides of the splice. Where heat shrink tubing may not shrink sufficiently to provide a watertight seal around the individual conductors, prior to heating the tubing, increase the diameter of the conductor insulation using hot melt adhesive tape to provide a watertight seal between the individual conductors and the heat shrink tubing. Ensure the tape extends past the heat shrink tubing. Use hot melt adhesive tape to fill the gap and seal the ends of heat shrink tubing. Heat shrink tubing that appears to have been burned, or overheated, is considered defective and must be replaced.
4. Size and install gel-filled insulating splice covers according to manufacturer's specifications when used in place of heat shrink tubing.
5. Wire nuts with factory applied waterproof sealant may be used for 8 AWG or smaller conductors in above ground junction boxes, but not in pole bases or ground boxes. Install wire nuts in an upright position to prevent the accumulation of water.
6. Support conductors in illumination poles with a J-hook at the top of the pole.
7. When terminating conductors, remove the insulation and jacketing material without nicking the individual strands of the conductor. Conductors with nicked individual conductor strands or removed strands will be considered damaged.
8. Replace conductors and cables that are damaged beyond repair or that fail an insulation resistance test at no additional cost to the department.
9. Do not repair damaged conductors with duct tape, electrical tape, or wire nuts. Use only approved splicing methods.
10. Do not terminate more than one conductor under a single connector, unless the connector is rated for multiple conductors. Do not exceed the pressure connector's listing for maximum number and size of conductors allowed.
11. Install breakaway connectors on conductors bid under Item 620 whenever those conductors pass through a breakaway support device. Follow manufacturer's instructions when terminating conductors to breakaway connectors. Properly torque threaded connections. Proper terminations are critical to the safe operation of breakaway devices. Trim waterproofing boots on breakaway connectors to fit snugly around the conductor to ensure waterproof connection. Only one conductor may enter a single opening in a boot. Provide waterproof boots with the correct number of openings. Leave unused openings factory sealed. Use prequalified breakaway connectors as shown on the MPL.
12. Provide and install a separate stranded equipment grounding conductor (EGC) in all conduits that contain circuit wiring of 50 volts or more. Unless shown elsewhere, size the EGC to be the same size as the largest current carrying conductor contained in the conduit. Ensure all EGCs are bonded together at every accessible location. For traffic signal installations, provide a minimum size 8 AWG EGC. The EGC is paid for under Item 620.

C. TEMPORARY WIRING

1. Install temporary conductors and electrical equipment in accordance with the NEC article "Temporary Installations" and Department standard sheets.
2. Provide a ground fault circuit interrupter (GFCI) for power outlets for portable electrical equipment, power tools, ice machines, ice storage bins and refrigerators located outdoors at grade. GFCI may be any one of the following: molded cord and plug set, receptacle, or circuit breaker type.
3. Use listed wire nuts with factory applied sealant for temporary wiring where approved.
4. Enclose conductor splices within a listed enclosure or ground box, or ensure the splices are more than 10 ft. above grade vertically and more than 5 ft. horizontally from any metal structure. Where installing temporary conductors in areas subject to vehicle traffic or mobile construction equipment, ensure the vertical clearance to ground is at least 18 ft. when measured at the lowest point. Ground messenger wires that support power conductors in conformance with the NEC.
5. Protect and when necessary repair any existing electrical conduits uncovered during the construction process in a timely manner and in conformance with the NEC.

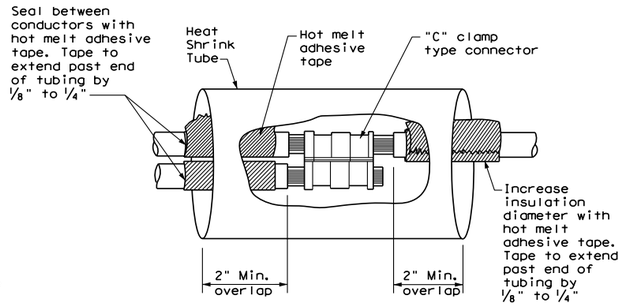
GROUND RODS & GROUNDING ELECTRODES

A. MATERIAL INFORMATION

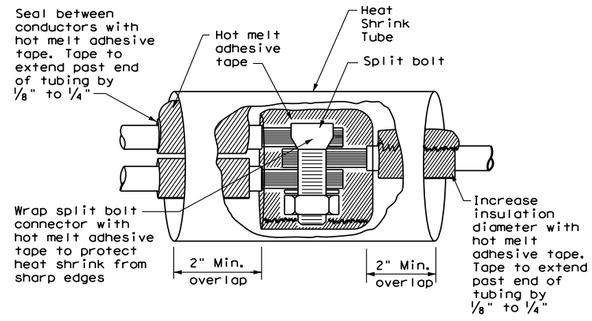
1. Provide and install a grounding electrode at electrical services. Provide ground rods according to DMS 11040 and the plans. Larger diameter or longer length rods may be called for in some specific locations, see the individual plans sheets. Concrete encased grounding electrodes may be called for in specific locations including electrical service, see individual plan sheets.

B. CONSTRUCTION METHODS

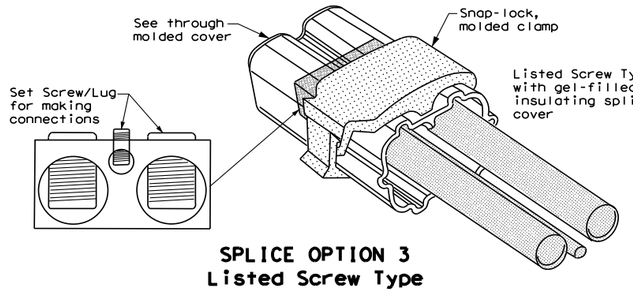
1. Furnish auxiliary ground rods for lightning protection and install in soil, concrete, or both, as called for in the plans. For ground rods installed in concrete, ensure the connection of the conductor to the ground rod is readily accessible for inspection or repairs. For ground rods installed in soil, ensure that the upper end is between 2 to 4 in. below finished grade.
2. Do not place ground rods in the same drilled hole as a timber pole.
3. Install ground rods so the imprinted part number is at the upper end of the rod.
4. Remove all non-conductive coatings such as concrete splatter from the rod at the clamp location.
5. Route all conductors as short and straight as possible for connection to lightning protection ground rods. When a bend is required, ensure a minimum radius bend of four inches for these conductors.
6. Unless otherwise called for in the plans, protect grounding electrode conductors with non-metallic conduit. When protecting grounding electrode conductors with metal conduit, provide and install a grounding type bushing and properly sized bonding jumper on each end of the metal conduit.
7. Written authorization is required before installing a ground rod in a horizontal trench for rocky soil or a solid rock bottom.



SPLICE OPTION 1
Compression Type



SPLICE OPTION 2
Split Bolt Type



SPLICE OPTION 3
Listed Screw Type

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ELECTRICAL DETAILS
CONDUCTORS

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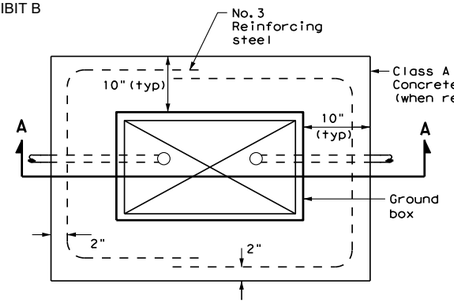
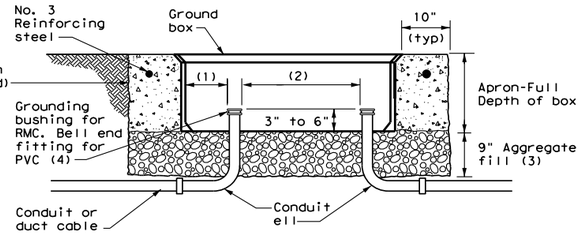
EXHIBIT B



PLAN VIEW



SECTION A - A

APRON FOR GROUND BOX

(1) Uniformly space ends of conduits within the ground box. Position ends of conduits so that ground box walls do not interfere with the installation of grounding bushings or bell end fittings.

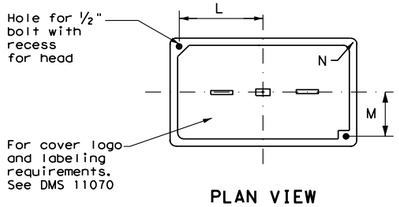
(2) Maintain sufficient space between conduits to allow for proper installation of bushing.

(3) Place aggregate under the box, not in the box. Aggregate should not encroach on the interior volume of the box.

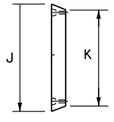
(4) Install a grounding bushing on the upper end of all RMC terminating in a ground box. Ground RMC elbows when any part of the elbow is less than 18 in. below the bottom of the ground box. Install a PVC bushing or bell end fitting on the upper end of all PVC conduits terminating in a ground box.

GROUND BOX DIMENSIONS	
TYPE	OUTSIDE DIMENSIONS (INCHES) (Width x Length X Depth)
A	12 X 23 X 11
B	12 X 23 X 22
C	16 X 29 X 11
D	16 X 29 X 22
E	12 X 23 X 17

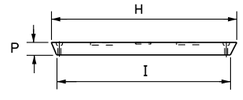
GROUND BOX COVER DIMENSIONS								
TYPE	DIMENSIONS (INCHES)							
	H	I	J	K	L	M	N	P
A, B & E	23 1/4	23	13 3/4	13 1/2	9 7/8	5 1/8	1 3/8	2
C & D	30 1/2	30 1/4	17 1/2	17 1/4	13 1/4	6 3/4	1 3/8	2



PLAN VIEW



END



SIDE

GROUND BOX COVER

GROUND BOXES

A. MATERIALS

1. Provide polymer concrete ground boxes measuring 16x30x24 in. (WxLxD) or smaller in accordance with Departmental Material Specification (DMS) 11070 "Ground Boxes" and Item 624 "Ground Boxes."
2. Provide Type A, B, C, D, and E ground boxes as shown in the plans, and as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies," Item 624.
3. Ensure ground box cover is correctly labeled in accordance with DMS 11070.
4. Provide larger ground boxes in accordance with Item 624 and as shown in the plans.

B. CONSTRUCTION METHODS

1. Remove all gravel and dirt from conduit. Cap all conduits prior to placing aggregate and setting ground box. Provide Grade 3 or 4 coarse aggregate as shown on Table 2 of Item 302 "Aggregates for Surface Treatments." Ensure aggregate bed is in place and at least 9 inches deep, prior to setting the ground box. Install ground box on top of aggregate.
2. Cast ground box aprons in place. Reinforcing steel may be field bent. Ensure the depth of concrete for the apron extends from finished grade to the top of the aggregate bed under the box. Ground box aprons, including concrete and reinforcing steel, are subsidiary to ground boxes when called for by descriptive code.
3. Keep bolt holes in the box clear of dirt. Bolt covers down when not working in ground boxes.
4. Install all conduits and ells in a neat and workmanlike manner. Uniformly space conduits so grounding bushings and bell end fittings can easily be installed.
5. Temporarily seal all conduits in the ground box until conductors are installed.
6. Permanently seal conduits immediately after the completion of conductor installation and pull tests. Permanently seal the ends of all conduits with duct seal, expandable foam, or other method as approved. Do not use duct tape as a permanent conduit sealant. Do not use silicone caulk as a sealant.
7. When a ground rod is present in a ground box, bond all equipment grounding conductors together and to the ground rod with listed connectors.
8. When a type B or D ground box is stacked to meet volume requirements, it is allowable to cut an appropriately sized hole for conduit entry in the side wall at least 18 inches below grade.
9. If an existing ground box in the contract has a metal cover, bond the cover to the equipment grounding conductor with a 3 ft. long stranded bonding jumper the same size as the grounding conductor. The bonding jumper is subsidiary to various bid items. Verify existing ground boxes with metal covers are shown on the plans, with notes fully describing the work required.
10. If other ground boxes with metal covers are within the project limits but are not part of the contract, the Engineer may direct the Contractor to bond the metal covers, identifying the specific boxes in writing. This work will be paid for separately.
11. Bond metal ground box covers to the grounding conductor with a tank ground type lug.

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ELECTRICAL DETAILS GROUND BOXES

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ELECTRICAL SERVICES NOTES

1. Provide new materials. Ensure installation and materials comply with the applicable provisions of the National Electrical Code (NEC) and National Electrical Manufacturers Association (NEMA) standards. Ensure material is Underwriters Laboratories (UL) listed. Provide and install electrical service conduits, conductors, disconnects, contactors, circuit breaker panels, and branch circuit breakers as shown on the Electrical Service Data chart in the plans. Faulty fabrication or poor workmanship in material, equipment, or installation is justification for rejection. Where manufacturers provide warranties and guarantees as a customary trade practice, furnish these to the State.

2. Provide electrical services in accordance with Electrical Details standard sheets, Departmental Material Specification (DMS) 11080 "Electrical Services," DMS 11081 "Electrical Services-Type A," DMS 11082 "Electrical Services-Type C," DMS 11083 "Electrical Services-Type D," DMS 11084 "Electrical Services-Type T," DMS 11085 "Electrical Services-Pedestal (PS)", and Item 628 "Electrical Services" of the Standard Specifications. Provide electrical service types A, C, and D, as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies," Item 628. Provide other service types as detailed on the plans.

3. Provide all work, materials, services, and any incidentals needed to install a complete electrical service as specified in the plans.

4. Coordinate with the Engineer and the utility provider for metering and compliance with utility requirements. Primary line extensions, connection charges, meter charges, and other charges by the utility company to provide power to the location are paid for in accordance with Item 628. Get approval for the costs associated with these charges prior to engaging the utility company to do the work. Consult with the utility provider to determine costs and requirements, and coordinate the work as approved.

5. The enclosure manufacturer will provide Master Lock Type 2 with brass tumblers keyed #2195 for all custom electrical enclosures. Installing Contractor is to provide Master Lock #2195 Type 2 with brass tumblers for "off the shelf" enclosures. Master Lock #2195 keys and locks become property of the State. Unless otherwise approved, do not energize electrical service equipment until locks are installed.

6. Enclosures with external disconnects that de-energize all equipment inside the enclosure do not need a dead front trim. Protect incoming line terminations from incidental contact as required by the NEC.

7. When galvanized is specified for nuts, screws, bolts or miscellaneous hardware, stainless steel may be used.

8. Provide wiring and electrical components rated for 75°C. Provide red, black, and white colored XHHW service entrance conductors of minimum size 6 American Wire Gauge (AWG). Identify size 6 AWG conductors by continuous color jacket. Identify electrical conductors sized 4 AWG and larger by continuous color jacket or by colored tape. Mark at least 6 inches of the conductor's insulation with half laps of colored tape, when identifying conductors. Ensure each service entrance conductor exits through a separately bushed non-metallic opening in the weatherhead. The lengths of the conductors outside the weatherhead are to be 12 inches minimum, 18 inches maximum, or as required by utility.

9. All electrical service conduit and conductors attached to the electrical service including the riser or the elbow below ground are subsidiary to the electrical service. For an underground utility feed, all service conduit and conductors after the elbow, including service conduit and conductors for the utility pole riser when furnished by the Contractor, will be paid for separately.

10. Provide rigid metal conduit (RMC) for all conduits on service, except for the ½ in. PVC conduit containing the electrical service grounding electrode conductor. Size the service entrance conduit as shown in the plans. Ensure conduit for branch circuit entry to enclosure is the same size as that shown on the layout sheets for branch circuit conduit. Extend all rigid metal conduits a minimum of 6 inches underground and then couple to the type and schedule of the conduit shown on the layout for that particular branch circuit. Install a grounding bushing on the RMC where it terminates in the service enclosure.

11. Use of liquidtight flexible metal conduit (LFMC) is allowed between the meter and service enclosure when they are mounted 90 to 180 degrees to each other. Size the LFMC the same size as service entrance conduit. LFMC must not exceed 3 feet in length. Strap LFMC within 1 foot of each end. LFMC less than 12 inches in length need not be strapped. Each end of LFMC must have a grounding bushing or be terminated with a grounding fitting. The LFMC must contain a grounded (neutral) conductor. Ensure any bend in LFMC never exceeds 180 degrees. A pull test is required on all installed conductors, with at least six inches of free conductor movement demonstrated to the satisfaction of the Engineer.

12. Ensure all mounting hardware and installation details of services conform to utility company specifications.

13. For all electrical service enclosures listed under Item 628 on the MPL, the UL 508 enclosure manufacturers will prepare and submit a schematic drawing unique to each service. Before shipment to the job site, place the applicable laminated schematic drawings and the laminated plan sheet showing the electrical service data chart used to build the enclosure in the enclosure's data pocket. The installing contractor will copy and laminate the actual project plan sheets detailing all equipment and branch circuits supplied by that service. The laminated plan sheets are to be placed in the service enclosure's document pocket. Reduce 11 in. x 17 in. plan sheets to 8 ½ in. x 11 in. before laminating. If the installation differs from the plan sheets, the installing contractor is to redline plan sheets before laminating.

14. When providing an "Off The Shelf" Type D or Type T service, provide laminated plan sheets detailing equipment and branch circuits supplied by that service. Reduce 11 in. x 17 in. plan sheets to 8 ½ in. x 11 in before laminating. Deliver these drawings before completion of the work to the Engineer, instead of placing in enclosure that has no door pocket.

15. Do not install conduit in the back wall of a service enclosure where it would penetrate the equipment mounting panel inside the enclosure. Provide grounding bushings on all metal conduits, and terminate bonding jumpers to grounding bus. Grounding bushings are not required when the end of the metal conduit is fitted with a conduit sealing hub or threaded boss, such as a meter base hub.

SERVICE ASSEMBLY ENCLOSURE

1. Provide threaded hub for all conduit entries into the top of enclosure.

2. Type galvanized steel (GS) enclosures may be used for Type C panelboards and for Type D and T services that do not use an enclosure mounted photocell or lighting contactor. Provide GS enclosures in accordance with DMS 11080, 11082, 11083, and 11084.

3. Provide aluminum (AL) and stainless steel (SS) enclosures for Types A, C, and D in accordance with DMS 11080, 11081, 11082, 11083, and 11084. Do not paint stainless steel.

4. Provide pedestal service (PS) enclosures in accordance with ED(9) and DMS 11080 and 11085. Do not provide GS pedestal services. If GS is shown in the PS descriptive code, provide an AL enclosure.

MAIN DISCONNECT & BRANCH CIRCUIT BREAKERS

1. Field drill flange-mounted remote operator handle if needed, to ensure handle is lockable in both the "On" and "Off" positions.

2. When the utility company provides a transformer larger than 50 KVA, verify that the available fault current is less than the circuit breaker's ampere interrupting capacity (AIC) rating and provide documentation from the electric utility provider to the Engineer.

PHOTOELECTRIC CONTROL

1. Provide photocell as listed on the MPL. Move, adjust, or shield the photocell from stray or ambient night time light to ensure proper operation. Mount photocell facing north when practical. Mount top of pole photocells as shown on Top Mounted Photocell Detail.

*ELECTRICAL SERVICE DATA

Elec. Service ID	Plan Sheet Number	Electrical Service Description	Service Conduit **Size	Service Conductors No./Size	Safety Switch Amps	Main Ckt. Bkr. Pole/Amps	Two-Pole Contractor Amps	Panelbd/ Loadcenter Amp Rating	Branch Circuit ID	Branch Ckt. Bkr. Pole/Amps	Branch Circuit Amps	KVA Load
SB 183	289	ELC SRV TY A 240/480 100(SS)AL(E)SF(U)	2"	3/#2	100	2P/100	100	N/A	Lighting NB	2P/40	26	28.1
									Lighting SB	2P/40	25	
									Underpass	1P/20	15	
NB Access	30	ELC SRV TY D 120/240 060(NS)SS(E)TS(O)	1 ¼"	3/#6	N/A	2P/60		100	Sig. Controller	1P/30	23	5.3
							30		Luminaires	2P/20	9	
									CCTV	1P/20	3	
2nd & Main	58	ELC SRV TY T 120/240 000(NS)GS(N)SP(O)	1 ¼"	3/#6	N/A	N/A	N/A	70	Flashing Beacon 1	1P/20	4	1.0
									Flashing Beacon 2	1P/20	4	

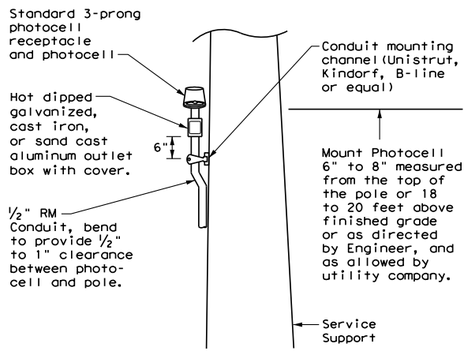
* Example only, not for construction. All new electrical services must have electrical service data chart specific to that service as shown in the plans.

** Verify service conduit size with utility. Size may change due to utility meter requirements. Ensure conduit size meets the National ELectrical Code.

EXPLANATION OF ELECTRICAL SERVICE DESCRIPTIVE CODE

ELEC SERV TY X XXX/XXX XXX (XX) XX (X) XX (X)

- Schematic Type
- Service Voltage V / V
- Disconnect Amp Rating
  000 indicates main lug only/
  Typically Type T
- (SS)= Safety Switch Ahead of Meter-Check with Utility
- (NS)= No safety Switch Ahead of Meter-Check with Utility
- Enclosure Type
  - GS= Galvanized steel("off the shelf")
  - SS= Stainless steel(Custom Enclosure)See MPL
  - AL= Aluminum (Custom Enclosure)See MPL
- Photocell Mounting Location
  - (E)= Inside Service/Enclosure Mounted
  - (T)= Top of pole
  - (L)= Luminaire mounted
  - (N)= None/No Photocell or Lighting Contactor Required
- Service Support Type
  - GC= Granite concrete
  - OC= Other concrete
  - TP= Timber pole
  - SP= Steel pole
  - SF= Steel frame
  - OT= Pole by others or paid for separately
  - EX= Existing pole
  - TS= Service on traffic signal pole
  - PS= Pedestal Service
- O= Overhead Service Feed from Utility
- U= Underground Service Feed from Utility



TOP MOUNTED PHOTOCELL

Install conduit strap maximum 3 feet from box. 5 foot maximum spacing between straps supporting conduit.

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ELECTRICAL DETAILS SERVICE NOTES & DATA

ED(5)-14

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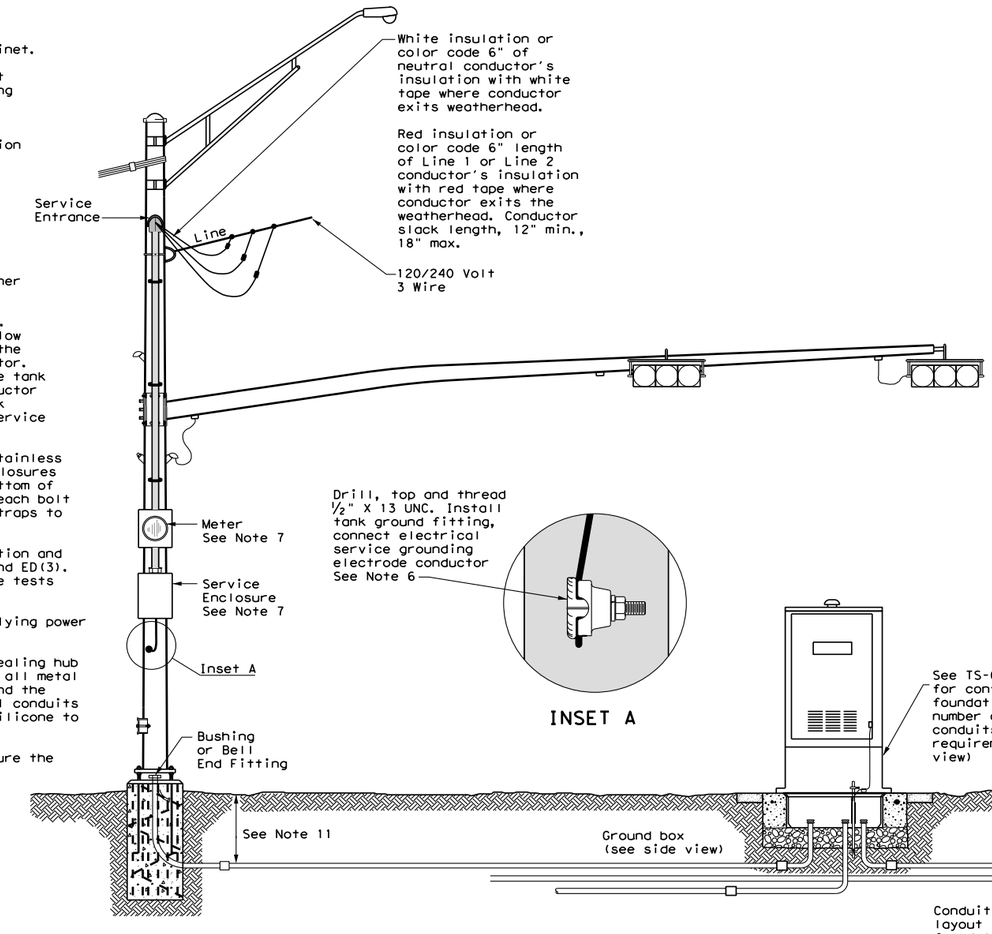
EXHIBIT B

TRAFFIC SIGNAL NOTES

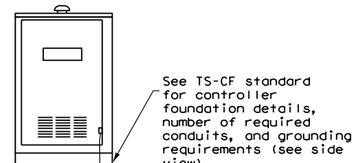
1. Do not pass luminaire conductors through the signal controller cabinet.
2. Include an equipment grounding conductor in all conduits throughout the electrical system. Bond all exposed metal parts to the grounding conductor.
3. Provide roadway luminaires, when required, in accordance with the material and construction sections of Item 610, "Roadway Illumination Assemblies," except for performance testing of luminaires. Test installed roadway luminaires for proper operation as a part of the associated traffic signal system test.
4. If internally illuminated street name signs are approved for use, ground the fixture to the pole with a 12 AWG green XHHW conductor.
5. Bond anchor bolts to rebar cage in two locations using #3 bars or 6 AWG stranded copper conductors. Use listed mechanical connectors rated for embedment in concrete. See TXDOT standard TS-FD for further details.
6. Drill and tap signal poles for ½ in. X 13 UNC tank ground fitting. Provide and install tank ground fitting 4 in. to 6 in. directly below electrical service enclosure. Provide properly sized hole through the bottom of the enclosure for the service grounding electrode conductor. Connect the electrical service grounding electrode conductor to the tank ground fitting. Ensure electrical service grounding electrode conductor is as short and straight as possible from the enclosure to the tank ground fitting. See Inset A detail for further information. Size service entrance conduit and branch circuit conduit as shown in the plans.
7. Mount electrical service enclosure and meter to signal pole with stainless steel bands. Ensure bands are a minimum width of ¾ in. Secure enclosures to bands using two-bolt brackets. Install brackets near top and bottom of each enclosure. Install properly sized stainless steel washers on each bolt in the enclosure. Band or drill and tap properly sized stand-off straps to signal pole for attaching conduit.
8. Conduct pull tests and insulation resistance tests on all illumination and power conductors as required in Item 620 "Electrical Conductors" and ED(3). To prevent electronics damage, do not conduct insulation resistance tests on traffic signal cables after termination.
9. Lock all enclosures and bolt down all ground box covers before applying power to the signal installation.
10. Terminate conduits entering the top of enclosures with a conduit-sealing hub or threaded boss such as meter hub. Install a grounding bushing on all metal conduits not connected to conduit-sealing hub or threaded boss. Bond the grounding bushing to the ground bus with a bonding jumper. Seal all conduits entering enclosures with duct seal or expanding foam. Do not use silicone to seal conduit ends.
11. For all conduits, ensure the burial depth is a minimum of 18". Ensure the minimum burial depth for conduit placed under a roadway is 24".



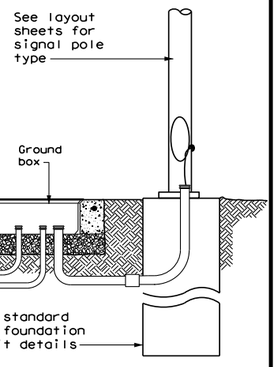
SIGNAL POLE WITH SERVICE

Type T electrical service mounted on signal pole shown as an example. See electrical details, layout sheets, and electrical service data chart for additional details.

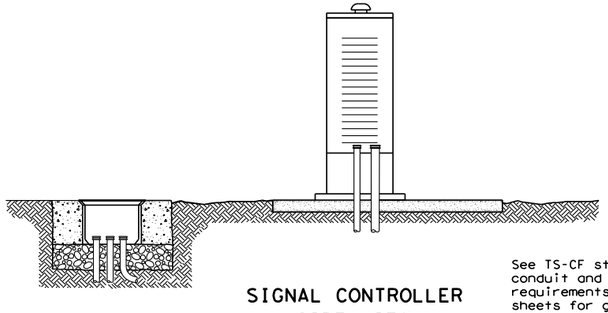
INSET A



SIGNAL CONTROLLER FRONT VIEW



SIGNAL POLE



SIGNAL CONTROLLER SIDE VIEW

See TS-CF standard for conduit and grounding requirements. See layout sheets for ground box locations and any additional conduits that are required.

Texas Department of Transportation | Traffic Operations Division Standard

ELECTRICAL DETAILS TYPICAL TRAFFIC SIGNAL SYSTEM DETAILS

ED(8)-14

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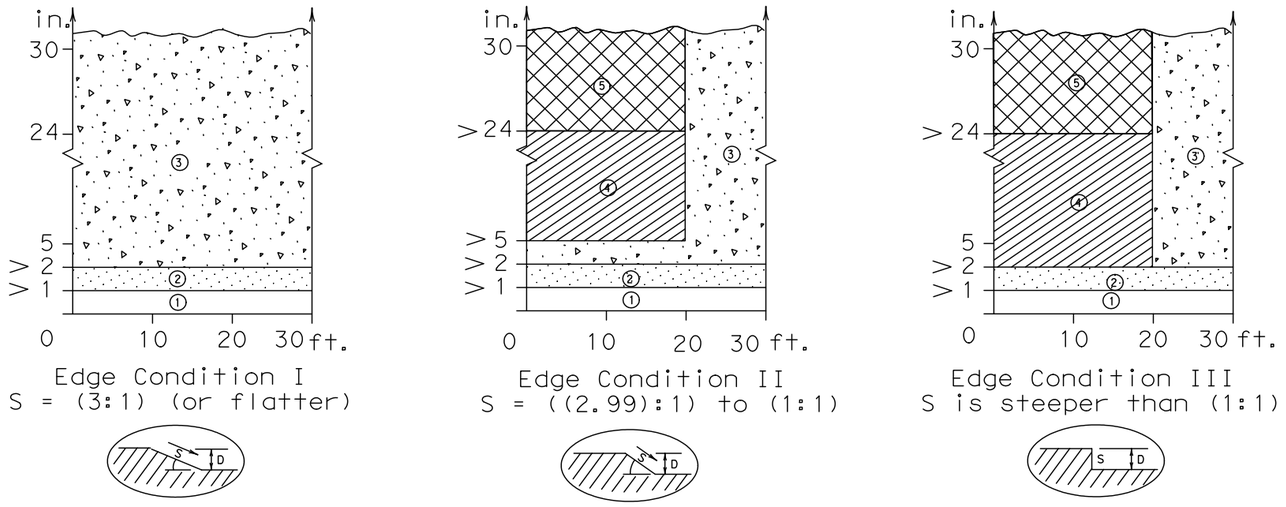
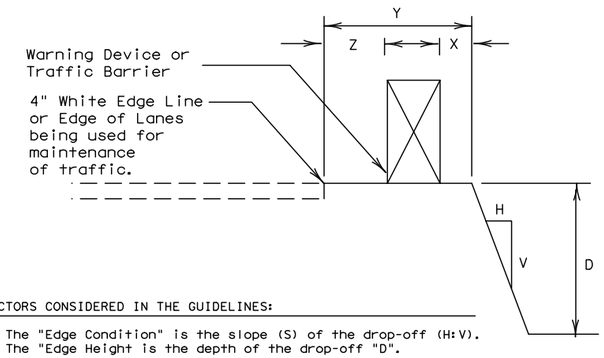
EXHIBIT B

DEFINITION OF TREATMENT ZONES FOR VARIOUS EDGE CONDITIONS

Edge Height (D) in Inches versus Lateral Clearance (Y) in Feet





FACTORS CONSIDERED IN THE GUIDELINES:

1. The "Edge Condition" is the slope (S) of the drop-off (H:V). The "Edge Height is the depth of the drop-off "D".

2. Distance "X" is to be the maximum practical under job conditions. Two feet minimum for high speed conditions. Distance "Y" is the lateral clearance from edge of travel lane to edge of dropoff. Distance "Z" does not have a minimum.

3. In addition to the factors considered in the guidelines, each construction zone drop-off situation should be analyzed individually, taking into account other variables, such as: traffic mix, posted speed in the construction zone, horizontal curvature, and the practicality of the treatment options.

4. The conditions for indicating the use of positive or protective barriers are given by Zone-5 and Figure-1. Traffic barriers are primarily applicable for high speed conditions. Urban areas with speeds of 30 mph or less may have a lesser need for signing, delineation, and barriers. Right-angled edges, however, with "D" greater than 2 inches and located within a lateral offset of 6 feet, may indicate a higher level of treatment.

5. If the distance "Y" must be less than 3 feet, the use of a positive barrier may not be feasible. In such a case, consider either: 1) narrowing the lanes to a desired 11 to 12 feet or 10 foot minimum (see CW20-8 sign), or 2) provide an edge slope such as Edge Condition I.

Zone	Treatment Types Guidelines:
①	No treatment.
②	CW 8-11 "Uneven Lanes" signs.
③	CW 8-9a "Shoulder Drop-Off" or CW 8-11 signs plus vertical panels.
④	CW 8-9a or CW 8-11, signs plus drums. Where restricted space precludes the use of drums, use vertical panels. An edge fill may be provided to change the edge slope to that of the preferable Edge Condition I.
⑤	Check indications (Figure-1) for positive barrier. Where positive barrier is not indicated, the treatment shown above for Zone- 4 may be used after consideration of other applicable factors.

Edge Condition Notes:

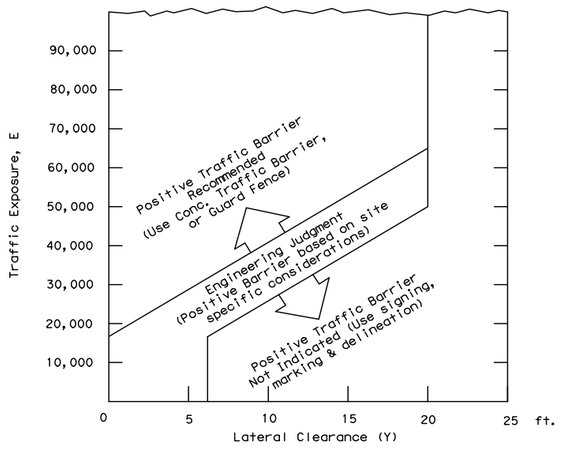
1. Edge Condition I: Most vehicles are able to traverse an edge condition with a slope rate of (3 to 1) or flatter. The slope must be constructed with a compacted material capable of supporting vehicles.

2. Edge Condition II: Most vehicles are able to traverse an edge condition with a slope between (2.99 to 1) and (1to 1) so long as "D" does not exceed 5 inches. Under-carriage drag on most automobiles will occur when "D" exceeds 6 inches. As "D" exeeds 24 inches, the possibility for rollover is greater in most vehicles.

3. Edge Condition III: When slopes are greater than (1 to 1) and where "D" is greater than 2 inches, a more difficult control factor may exist for some vehicles, if not properly treated. For example, where "D" is greater than 2 inches and up to 24 inches different types of vehicles may experience different steering control at different edge heights. Automobiles might experience more steering control differential when "D" is greater than 2 inches and up to 5 inches. Trucks, particularly those with high loads, have more steering control differential when "D" is greater than 5 inches and up to 24 inches. When "D" exceeds 24 inches, the possibility of rollover is greater for most vehicles.

4. Milling or overlay operations that result in Edge Condition III should not be in place without appropriate warning treatments, and these conditions should not be left in place for extended periods of time.

FIGURE-1: CONDITIONS INDICATING USE OF POSITIVE BARRIER FOR ZONE 5 (▨)



1 E = ADT x T
Where ADT is that portion of the average daily traffic volume traveling within 20 feet (generally two adjacent lanes) of the edge dropoff condition; and, T is the duration time in years of the dropoff condition.

2 Figure-1 provides a practical approach to the use of positive barriers for the protection of vehicles from pavement drop-offs. Other factors, such as the presence of heavy machinery, construction workers, or the mix and volume of traffic may make the use of positive barriers appropriate, even when the edge condition alone may not justify the use of a barrier.

3 An approved end treatment should be provided for any positive barrier end located within a lateral offset of 20 feet from the edge of the travel lane.

These guidelines apply to temporary traffic control areas or work zones where continuous pavement edges or drop-offs exists parallel and adjacent to a lane used by traffic. The edge conditions may be present between shoulders and travel lanes, between adjacent or opposing travel lanes, or at intermediate points across the width of the paved surface. Due to the variability in construction operations, tolerances in the variables may be allowed by the engineer. These guidelines do not apply to short term operations. These guidelines do not constitute a rigid standard or policy; rather, they are guidance to be used in conjunction with engineering judgement. These guidelines may be updated on the Design Division's on-line manuals.

Engineer's Seal

STATE OF TEXAS
THUY-NHU N. NGUYEN
135427
LICENSED
PROFESSIONAL ENGINEER

Date: 11/13/2020

Texas Department of Transportation
Traffic Operations Division

WORKSHEET FOR EDGE CONDITION TREATMENT TYPES

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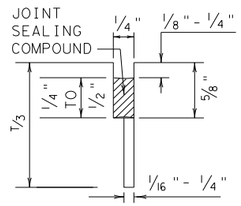
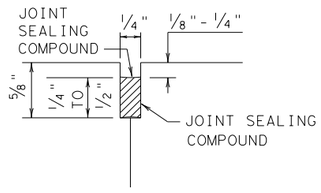
EXHIBIT B

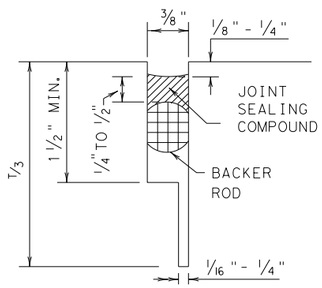
METHOD B: JOINT SEALING COMPOUND



LONGITUDINAL SAWED CONTRACTION JOINT



LONGITUDINAL OR TRANSVERSE CONSTRUCTION JOINT



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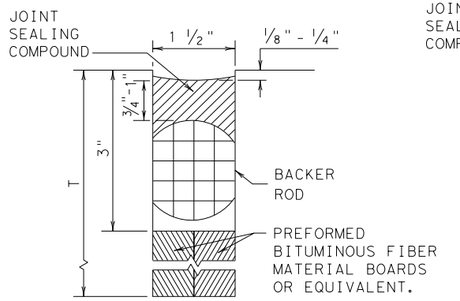
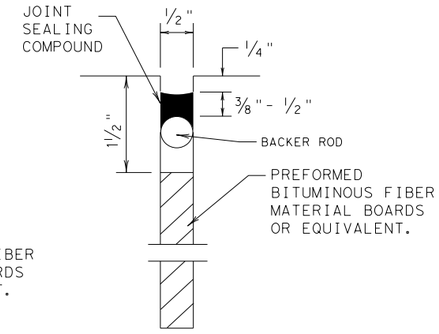
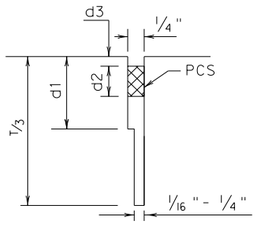


TRANSVERSE FORMED EXPANSION JOINT



FORMED ISOLATION JOINT

METHOD A: PREFORMED COMPRESSION SEALS (PCS)(DMS-6310 CLASS 6)



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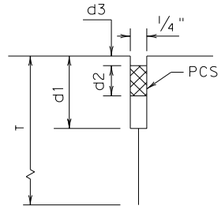
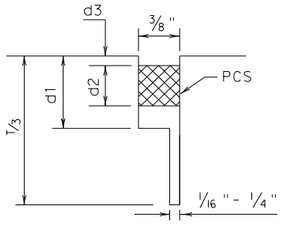


LONGITUDINAL CONSTRUCTION JOINT



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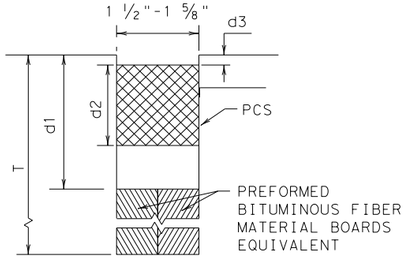

TRANSVERSE FORMED EXPANSION JOINT

GENERAL NOTES

1. UNLESS OTHERWISE SHOWN IN THE PLANS, EITHER METHOD "A" OR METHOD "B" MAY BE USED.
2. THE LOCATION OF JOINTS SHALL BE AS SHOWN ELSEWHERE IN THE PLANS.
3. THE JOINT RESERVOIR FOR SEALANT OR PCS SHALL BE SAWED UNLESS OTHERWISE SHOWN ON THE PLANS FOR THE LONGITUDINAL AND TRANSVERSE CONSTRUCTION JOINTS AND THE SAWED JOINTS.
4. DIMENSIONS d1, d2, AND d3 SHOWN IN METHOD A SHALL BE IN ACCORDANCE WITH THE PREFORMED COMPRESSION SEAL MANUFACTURER'S RECOMMENDATION.
5. REFER TO DMS-6310 "JOINT SEALANTS AND FILLERS" FOR THE CLASSIFICATIONS.
6. FOR SAWED LONGITUDINAL JOINT, LONGITUDINAL OR TRANSVERSE CONSTRUCTION JOINT, USE JOINT SEALANT CLASS 5 OR 8 UNLESS OTHERWISE SHOWN ON THE PLAN OR APPROVED.
7. FOR TRANSVERSE SAWED CONTRACTION, TRANSVERSE FORMED EXPANSION JOINT, AND ISOLATION JOINT USE JOINT SEALANT CLASS 5 OR 8 AT NEW JOINTS. USE JOINT SEALANT CLASS 4,5,7,OR 8 FOR MAINTAINING EXISTING JOINTS.
8. THE JOINTS SHALL BE CLEANED IN ACCORDANCE WITH THE ITEM 438 "CLEANING AND SEALING JOINTS" OR ITEM 713 "CLEANING AND SEALING JOINTS AND CRACKS (CONCRETE PAVEMENT)".
9. ISOLATION JOINTS ACCOMMODATE HORIZONTAL AND VERTICAL MOVEMENTS THAT OCCUR BETWEEN A PAVEMENT AND A STRUCTURE. ISOLATION JOINTS MAY BE USED FOR BRIDGE ABUTMENTS, INTERSECTIONS, CURB AND GUTTER, OLD AND NEW PAVEMENTS, OR AROUND DRAINAGE INLETS, MANHOLES, FOOTINGS AND LIGHTING STRUCTURES.

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CONCRETE PAVING DETAILS

JOINT SEALS

JS-14

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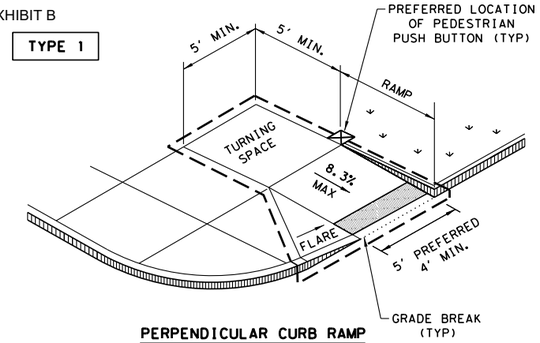
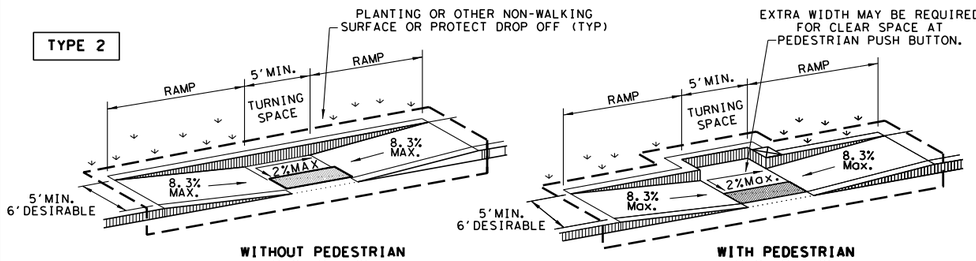
EXHIBIT B

TYPE 1



PERPENDICULAR CURB RAMP

TYPE 2



PARALLEL CURB RAMP

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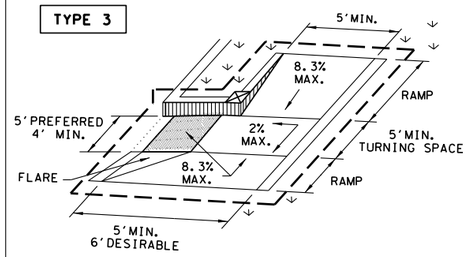

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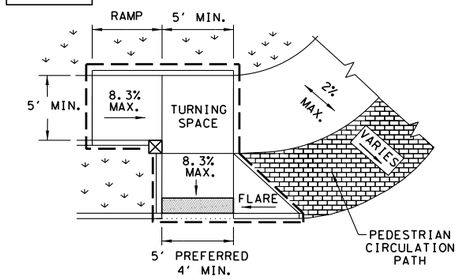
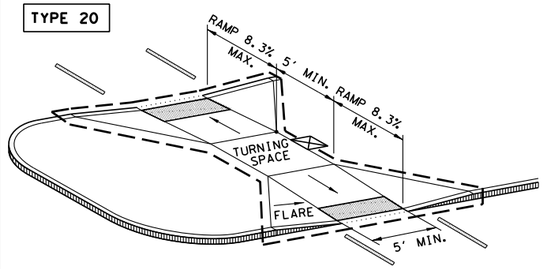


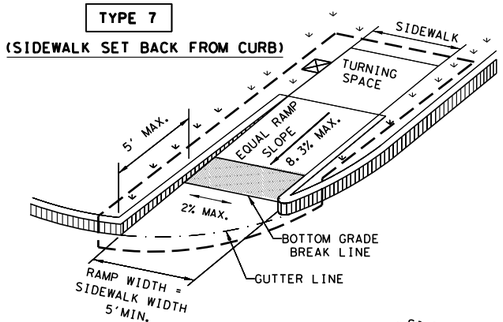
COMBINATION CURB RAMPS

TYPE 20

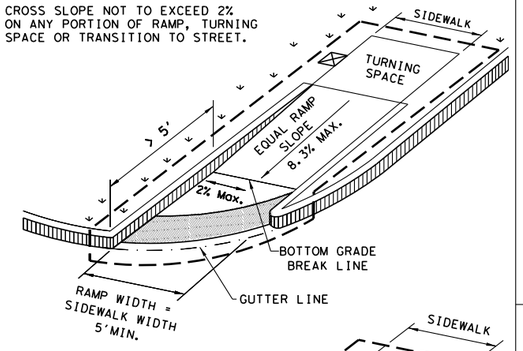


CURB RAMPS AT MEDIAN ISLANDS

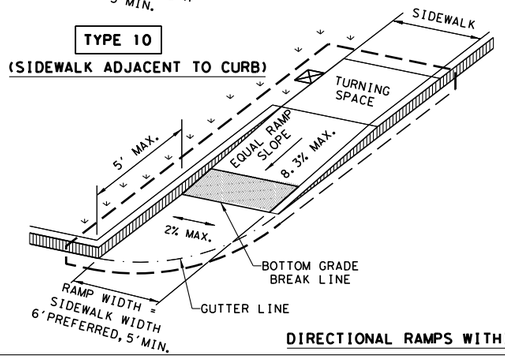
TYPE 7
(SIDEWALK SET BACK FROM CURB)



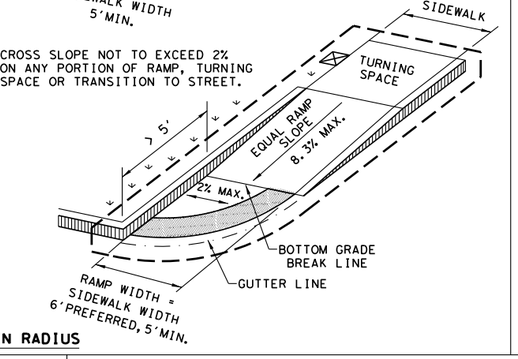
CROSS SLOPE NOT TO EXCEED 2% ON ANY PORTION OF RAMP, TURNING SPACE OR TRANSITION TO STREET.



TYPE 10
(SIDEWALK ADJACENT TO CURB)

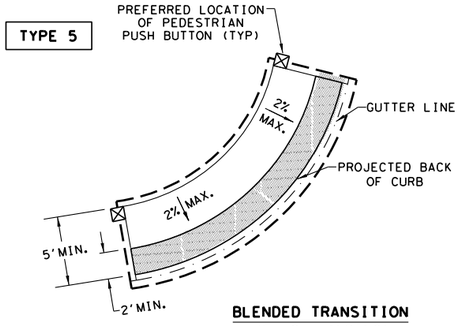


CROSS SLOPE NOT TO EXCEED 2% ON ANY PORTION OF RAMP, TURNING SPACE OR TRANSITION TO STREET.



DIRECTIONAL RAMPS WITHIN RADIUS

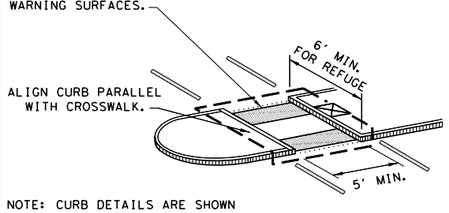
TYPE 5



BLENDED TRANSITION
(FLUSH LANDING)

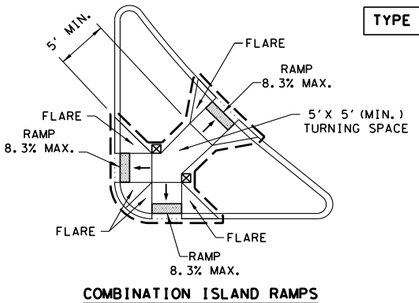
INSTALL DETECTABLE WARNING SURFACE AT EACH END OF THE CUT-THROUGH RAMP WITH A MINIMUM 2' USUAL SIDEWALK SURFACE BETWEEN. IF MEDIAN IS LESS THAN 6' WIDE, ELIMINATE DETECTABLE WARNING SURFACES.

TYPE 21

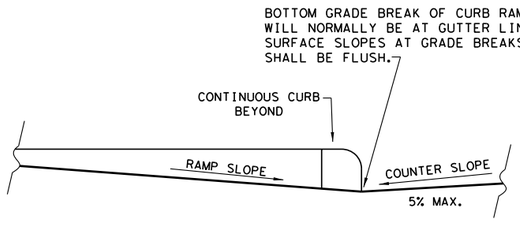


NOTE: CURB DETAILS ARE SHOWN ELSEWHERE IN THE PLANS.

TYPE 22



COMBINATION ISLAND RAMPS



TYPICAL SECTION OF PERPENDICULAR CURB RAMP AT CONNECTION TO ROADWAY

NOTES / LEGEND:

SEE GENERAL NOTES ON SHEET 2 OF 4 FOR MORE INFORMATION.

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

DETECTABLE WARNING SURFACE

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON IF APPLICABLE.

GUTTER LINE

GRADE BREAK

RAMP LIMITS OF PAYMENT

SHEET 1 OF 4

Texas Department of Transportation

Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	DN: TxDOT		DW: VP	CK: KM	CK: PK & JG
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REVISIONS					
REVISED 08,2005 REVISED 06,2012 REVISED 01,2018	DIST	COUNTY			SHEET NO.
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DATE:
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EXHIBIT B

GENERAL NOTES

CURB RAMPS

1. Install a curb ramp or blended transition at each pedestrian street crossing.
2. All slopes shown are maximum allowable. Cross slopes of 1.5% and lesser running should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
3. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%.
4. The minimum sidewalk width is 5′. Where the sidewalk is adjacent to the back of curb, a 6′ sidewalk width is desirable. Where a 5′ sidewalk cannot be provided due to site constraints, sidewalk width may be reduced to 4′ for short distances. 5′x 5′ passing areas at intervals not to exceed 200′ are required.
5. Turning Spaces shall be 5′x 5′ minimum. Cross slope shall be maximum 2%.
6. Clear space at the bottom of curb ramps shall be a minimum of 4′x 4′ wholly contained within the crosswalk and wholly outside the parallel vehicular travel path.
7. Provide flared sides where the pedestrian circulation path crosses the curb ramp. Flared sides shall be sloped at 10% maximum, measured parallel to the curb. Returned curbs may be used only where pedestrians would not normally walk across the ramp, either because the adjacent surface is planted, substantially obstructed, or otherwise protected.
8. Additional information on curb ramp location, design, light reflective value and texture may be found in the latest draft of the Proposed Guidelines for Pedestrian Facilities in the Public Right of Way (PROWAG) as published by the U.S. Architectural and Transportation Barriers Compliance Board (Access Board).
9. To serve as a pedestrian refuge area, the median should be a minimum of 6′ wide, measured from back of curbs. Medians should be designed to provide accessible passage over or through them.
10. Small channelization islands, which do not provide a minimum 5′x 5′ landing at the top of curb ramps, shall be cut through level with the surface of the street.
11. Crosswalk dimensions, crosswalk markings and stop bar locations shall be as shown elsewhere in the plans. At intersections where crosswalk markings are not required, curb ramps shall align with theoretical crosswalks unless otherwise directed.
12. Provide curb ramps to connect the pedestrian access route at each pedestrian street crossing. Handrails are not required on curb ramps.
13. Curb ramps and landings shall be constructed and paid for in accordance with Item 531 "Sidewalks".
14. Place concrete at a minimum depth of 5" for ramps, flares and landings, unless otherwise directed.
15. Furnish and install No. 3 reinforcing steel bars at 18" o.c. both ways, unless otherwise directed.
16. Provide a smooth transition where the curb ramps connect to the street.
17. Curbs shown on sheet 1 within the limits of payment are considered part of the curb ramp for payment, whether it is concrete curb, gutter, or combined curb and gutter.
18. Existing features that comply with applicable standards may remain in place unless otherwise shown on the plans.

DETECTABLE WARNING MATERIAL

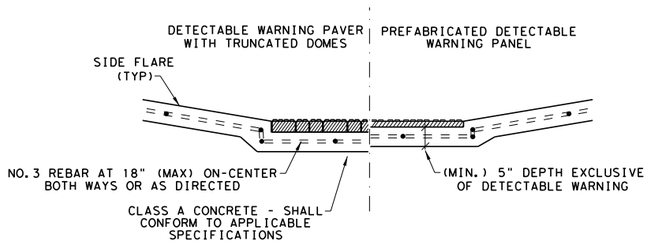
19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material adjacent to uncolored concrete, unless specified elsewhere in the plans.
20. Detectable Warning Materials must meet TxDOT Departmental Materials Specification DMS 4350 and be listed on the Material Producer List. Install products in accordance with manufacturer's specifications.
21. Detectable warning surfaces must be firm, stable and slip resistant.
22. Detectable warning surfaces shall be a minimum of 24 inches in depth in the direction of pedestrian travel, and extend the full width of the curb ramp or landing where the pedestrian access route enters the street.
23. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb and neither end of that edge is greater than 5 feet from the back of curb. Detectable warning surfaces may be curved along the corner radius.
24. Shaded areas on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.

DETECTABLE WARNING PAVERS (IF USED)

25. Furnish detectable warning paver units meeting all requirements of ASTM C-936, C-33. Lay in a two by two unit basket weave pattern or as directed.
26. Lay full-size units first followed by closure units consisting of at least 25 percent (25%) of a full unit. Cut detectable warning paver units using a power saw.

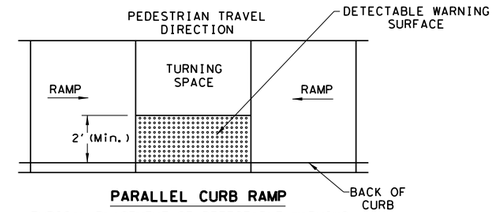
SIDEWALKS

27. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within unobstructed reach range specified in PROWAG section R406.
28. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
29. Street grades and cross slopes shall be as shown elsewhere in the plans.
30. Changes in level greater than 1/4 inch are not permitted.
31. The least possible grade should be used to maximize accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway. Where a continuous grade greater than five percent (5%) must be provided, handrails may be desirable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with PROWAG R409.
32. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
33. Driveways and turnouts shall be constructed and paid for in accordance with Item "Intersections, Driveways and Turnouts". Sidewalks shall be constructed and paid for in accordance with Item, "Sidewalks".
34. Sidewalk details are shown elsewhere in the plans.

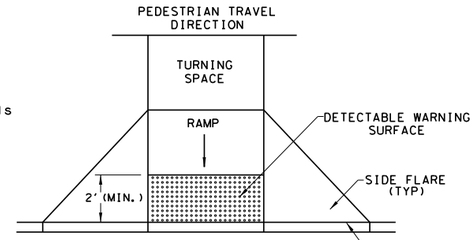


SECTION VIEW DETAIL
CURB RAMP AT DETECTIBLE WARNINGS

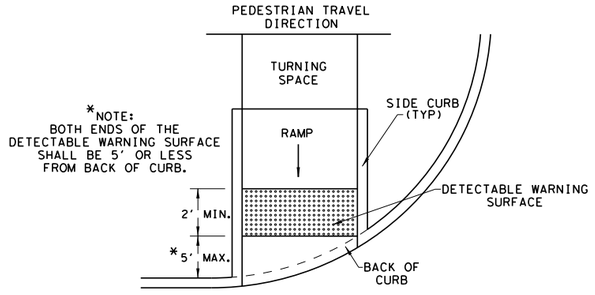
DETECTABLE WARNING SURFACE DETAILS



PARALLEL CURB RAMP
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON LANDING AT STREET EDGE.



PERPENDICULAR CURB RAMP
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.



DIRECTIONAL CURB RAMP
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.

SHEET 2 OF 4

Texas Department of Transportation | Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	DN: TxDOT		DW: VP	CK: KM	CK: PK & JG
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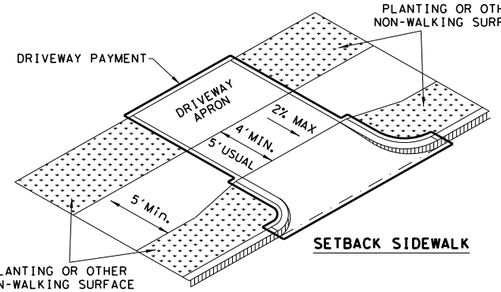
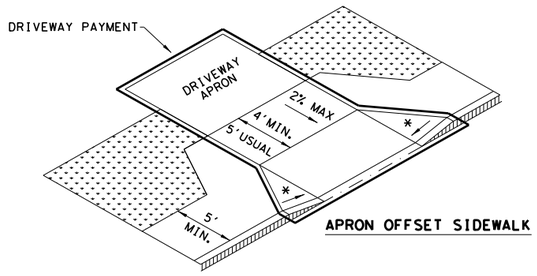
EXHIBIT B

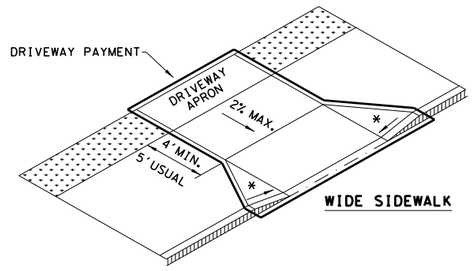
SIDEWALK TREATMENT AT DRIVEWAYS



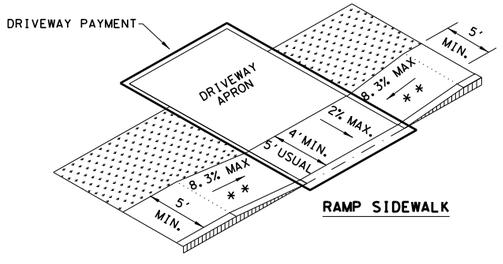
SETBACK SIDEWALK



APRON OFFSET SIDEWALK



WIDE SIDEWALK

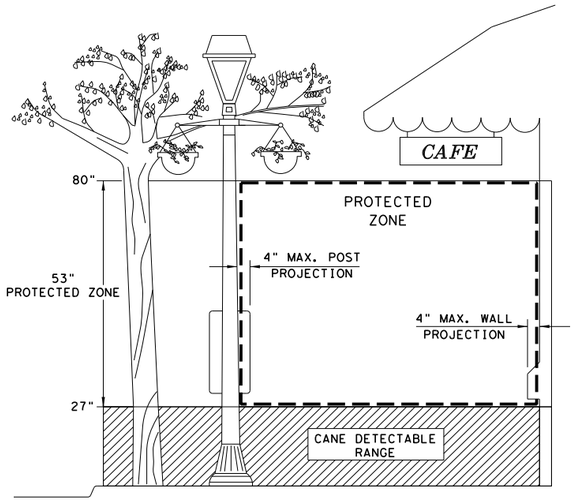


RAMP SIDEWALK

NOTES:

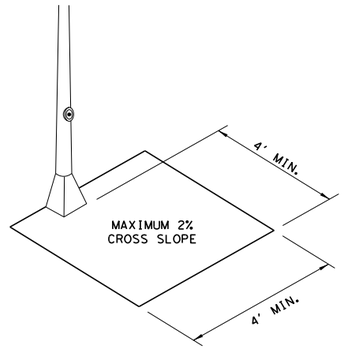
* WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.

* * IF CURB HEIGHT IS GREATER THAN 6 INCHES, USE GRADE LESS THAN OR EQUAL TO 5%. HANDRAIL AND DETECTABLE WARNING ARE NOT REQUIRED.

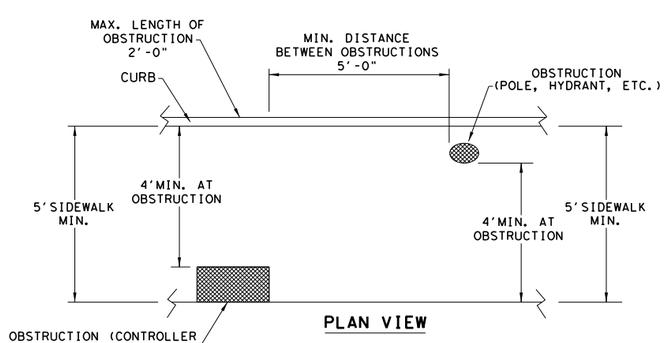


PROTECTED ZONE

NOTE: IN PEDESTRIAN CIRCULATION AREA, MAXIMUM 4" PROJECTION FOR POST OR WALL MOUNTED OBJECTS BETWEEN 27" AND 80" ABOVE THE SURFACE.



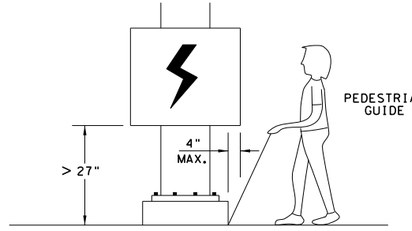
CLEAR SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



PLAN VIEW

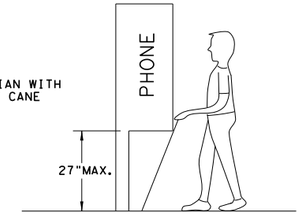
PLACEMENT OF STREET FIXTURES

NOTE: ITEMS NOT INTENDED FOR PUBLIC USE. MINIMUM 4' X 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.



PEDESTRIAN WITH GUIDE CANE

WHEN AN OBSTRUCTION OF A HEIGHT GREATER THAN 27" FROM THE SURFACE WOULD CREATE A PROTRUSION OF MORE THAN 4" INTO THE PEDESTRIAN CIRCULATION AREA, CONSTRUCT ADDITIONAL CURB OR FOUNDATION AT THE BOTTOM TO PROVIDE A MAXIMUM 4" OVERHANG.



PROTRUDING OBJECTS OF A HEIGHT ≤ 27" ARE DETECTABLE BY CANE AND DO NOT REQUIRE ADDITIONAL TREATMENT.

DETECTION BARRIER FOR VERTICAL CLEARANCE < 80"

SHEET 3 OF 4

Texas Department of Transportation | Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

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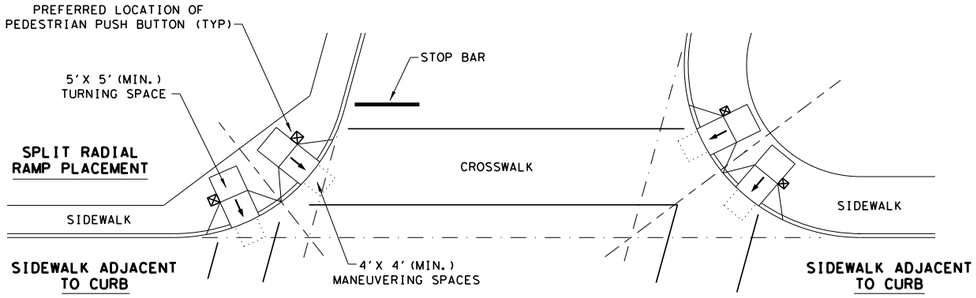
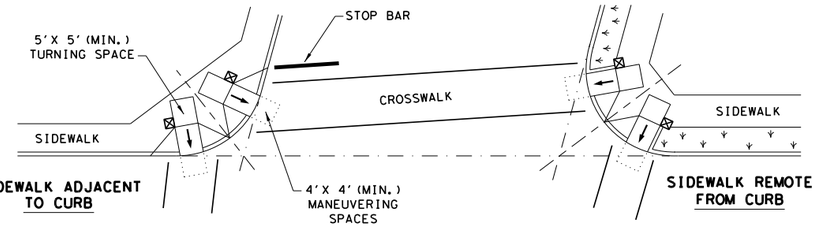
EXHIBIT B

TYPICAL CROSSING LAYOUTS

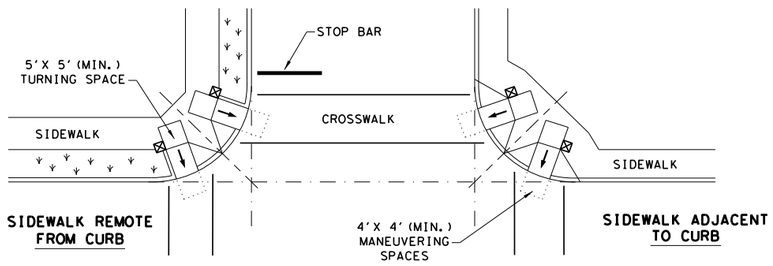
SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS



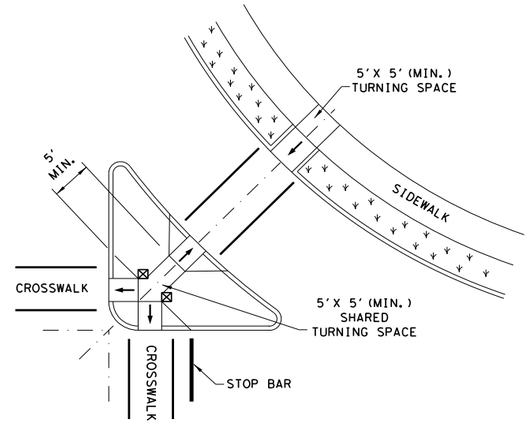
SKEWED INTERSECTION WITH "LARGE" RADIUS



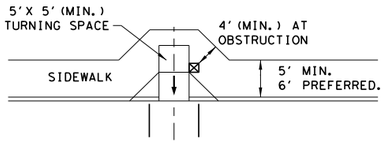
SKEWED INTERSECTION WITH "SMALL" RADIUS



NORMAL INTERSECTION WITH "SMALL" RADIUS



AT INTERSECTION
W/FREE RIGHT TURN & ISLAND



MID-BLOCK PLACEMENT
PERPENDICULAR RAMPS

LEGEND:

SHOWS DOWNWARD SLOPE. →

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON (IF APPLICABLE). ⊠

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

SHEET 4 OF 4

Texas Department of Transportation — Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

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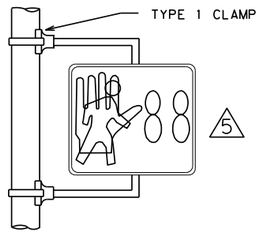
REVISED 06,2012	DAL	DALLAS		37	
REVISED 01,2018					

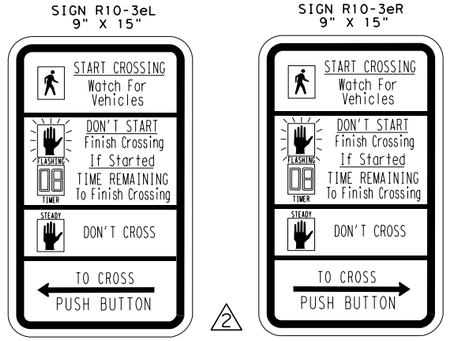
DATE:
FILE:

EXHIBIT B

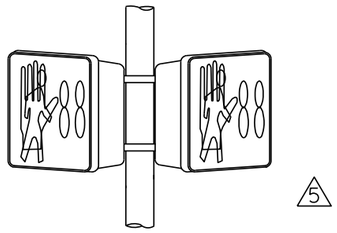
PEDESTRIAN PUSHBUTTON SIGN DETAILS



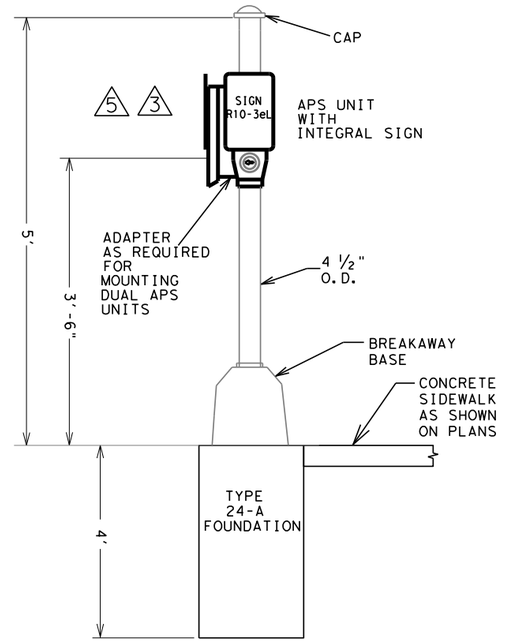
PEDESTRIAN SIGNAL HEAD MOUNTING FOR ONE PEDESTRIAN SIGNAL HEAD
152A



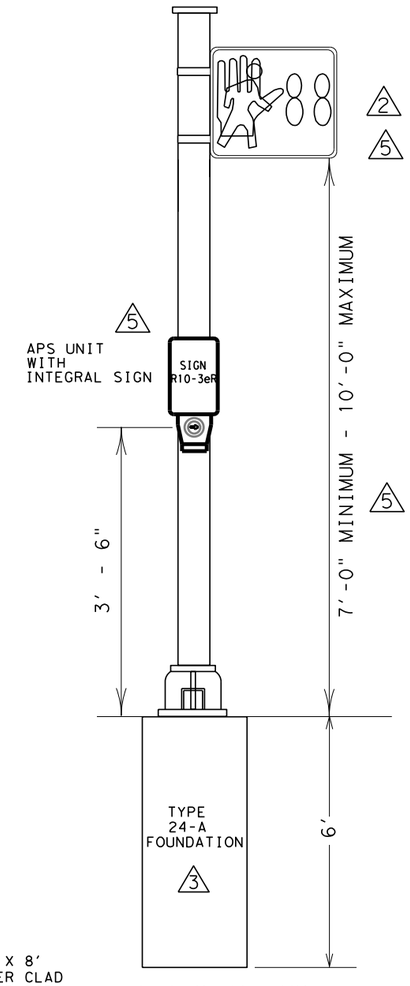
COUNTDOWN PEDESTRIAN PUSHBUTTON SIGN DETAILS



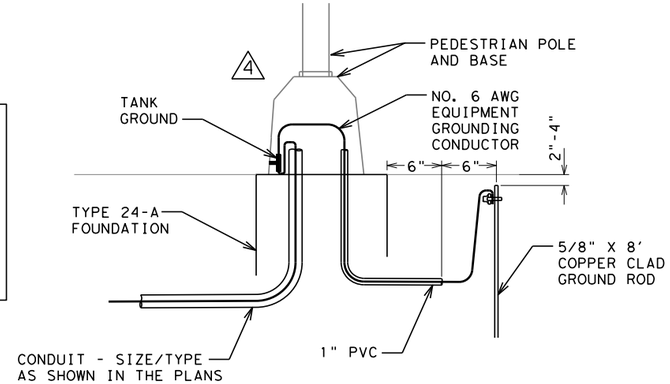
PEDESTRIAN SIGNAL HEAD MOUNTING FOR TWO PEDESTRIAN SIGNAL HEADS
143C



PEDESTRIAN PUSH BUTTON POLE



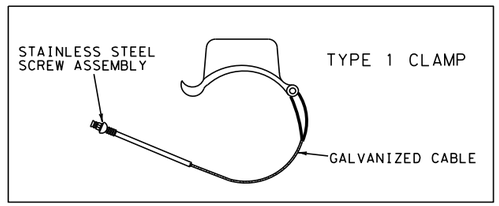
PEDESTAL POLE



PEDESTRIAN PUSH BUTTON POLE GROUNDING DETAILS

NOTE:
THE POLES ON THIS DRAWING ARE SHOWN AS AN EXAMPLE ONLY. POLES OF SIMILAR DESIGN FOR ANY CROSS SECTION WHICH MEET THE SPECIFICATIONS AND REQUIREMENTS SHOWN ON THESE DRAWINGS AND ARE APPROVED BY THE ENGINEER WILL BE DEEMED ACCEPTABLE.

1 5 NOTE: EITHER TYPE 1 CLAMPS OR CLAM SHELL MOUNTING HARDWARE MAY BE USED AS APPROVED BY THE ENGINEER. FOR CLAM SHELLS, USE ICC P/N 4805 OR McCAIN QUICKMOUNT OR APPROVED EQUAL.



1 ALTERNATIVE MOUNTING METHOD
revised 12-92

2 ALTERNATIVE PEDESTRIAN SIGNAL HEAD AND SIGNING
revised 10-08

3 PEDESTRIAN PUSH BUTTON POLE
revised 01-11

4 PEDESTRIAN PUSH BUTTON POLE GROUNDING DETAILS
revised 09-15

5 APS UNIT ADDED
"SYMBOLS ONLY" PEDESTRIAN SIGNAL HEAD REMOVED
MOUNTING HARDWARE NOTES REVISED
MOUNTING HEIGHT REVISED
revised 06-17

NOTES:

5
1. ALL PEDESTRIAN SIGNAL HEADS SHALL BE INSTALLED ON THE AWAY-FROM-TRAFFIC SIDE OF THE PEDESTAL OR MAST ARM POLE.
2. ALL WIRING FOR PEDESTRIAN SIGNALS SHALL BE TOTALLY ENCLOSED WITHIN THE SIGNAL MOUNTING HARDWARE.
3. ALL PEDESTRIAN SIGNAL HEADS AND PUSH BUTTON SIGNS SHALL DISPLAY THE SYMBOLIZED MESSAGES SHOWN ABOVE.

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DALLAS DISTRICT STANDARD

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
	(SEE TITLE SHEET)		38
STATE	STATE DIST.	COUNTY	
TEXAS	DAL	DALLAS	
CONT.	SECT.	JOB	HIGHWAY NO.

PEDESTRIAN SIGNAL HEAD DETAILS (DAL)

DISCLAIMER:
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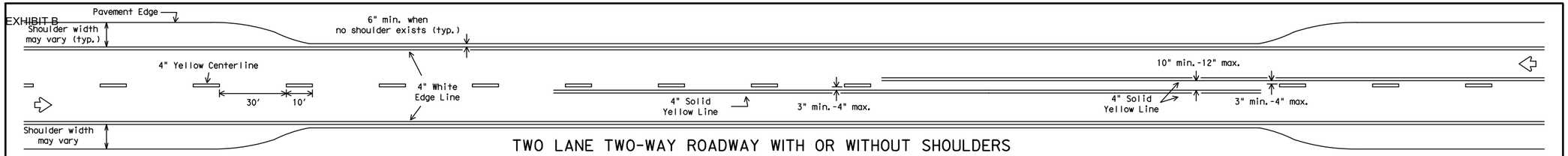
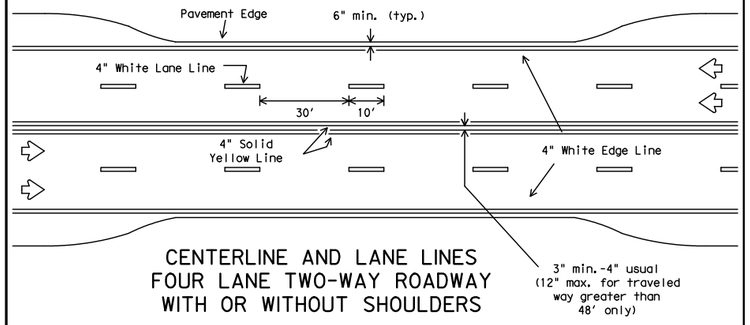
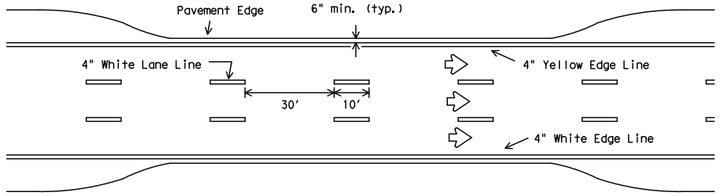
EXHIBIT B



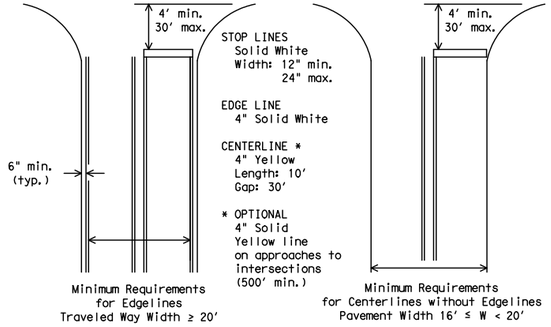
TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



CENTERLINE AND LANE LINES FOUR LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS

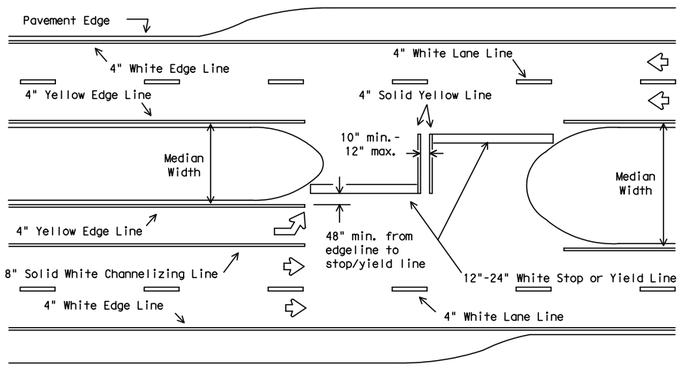


EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



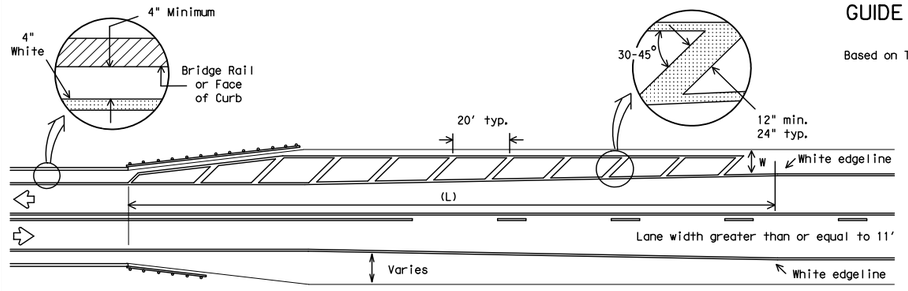
GUIDE FOR PLACEMENT OF STOP LINES, EDGE LINE & CENTERLINE

Based on Traveled Way and Pavement Widths for Undivided Highways



All medians shall be field measured to determine the location of necessary striping. Stop/Yield bars and centerlines shall be placed when the median width is greater than 30 ft. The median width is defined as the area between two roadways of a divided highway measured from edge of traveled way to edge of traveled way. The median excludes turn lanes. The median width might be different between intersections, interchanges and of opposite approaches of the same intersection. The narrow median width will be the controlling width to determine if markings are required.

FOUR LANE DIVIDED ROADWAY INTERSECTIONS



NOTES:

1. No-passing zone on bridge approach is optional but if used, it shall be a minimum 500 feet long.
2. For crosshatching length (L) see Table 1.
3. The width of the offset (W) and the required crosshatching width is the full shoulder width in advance of the bridge.
4. The crosshatching is not required if delineators or barrier reflectors are used along the structure.
5. For guard fence details, refer elsewhere in the plans.

ROADWAYS WITH REDUCED SHOULDER WIDTHS ACROSS BRIDGE OR CULVERT

TABLE 1 - TYPICAL LENGTH (L)

Posted Speed *	Formula
≤ 40	$L = \frac{WS^2}{60}$
≥ 45	L=WS

* 85th Percentile Speed may be used on roads where traffic speeds normally exceed the posted speed limit. Crosshatching length should be rounded up to nearest 5 foot increment.

L=Length of Crosshatching (FT.) W=Width of Offset (FT.)
S=Posted Speed (MPH)

EXAMPLES:

An 8 foot shoulder in advance of a bridge reduces to 4 feet on a 70 MPH roadway. The length of the cross-hatching should be:

$L = 8 \times 70 = 560$ ft.

A 4 foot shoulder in advance of a bridge reduces to 2 feet on a 40 MPH roadway. The length of the cross-hatching should be:

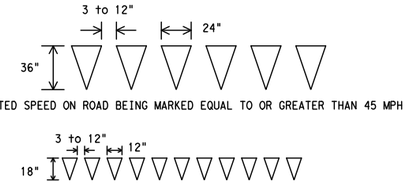
$L = 4(40)^2 / 60 = 106.67$ ft. rounded to 110 ft.

GENERAL NOTES

1. Edgeline striping shall be as shown in the plans or as directed by the Engineer. The edgeline should typically be placed a minimum of 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edgelines are not required in curb and gutter sections of roadways.
2. The traveled way includes only that portion of the roadway used for vehicular travel and not the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the inside of edgeline to inside of edgeline of a two lane roadway.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



YIELD LINES

Texas Department of Transportation
Traffic Operations Division

TYPICAL STANDARD PAVEMENT MARKINGS

PM(1)-12

© TxDOT November 1978	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
REVISIONS	CONT	SECT	JOB	HIGHWAY
8-95 2-12				
5-00				
8-00	DIST	COUNTY		SHEET NO.
3-03	DAL	DALLAS		39

22A

DATE:
FILE:

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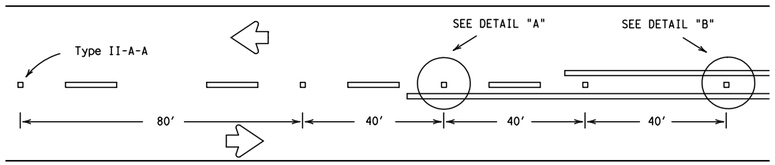
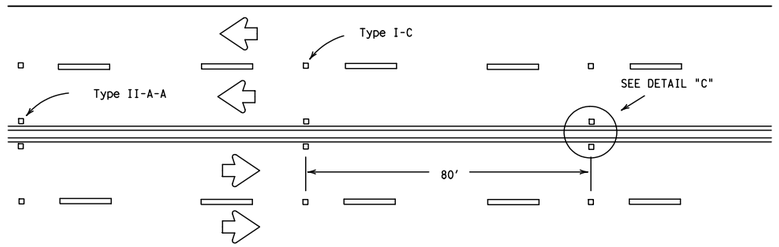
EXHIBIT B

REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE

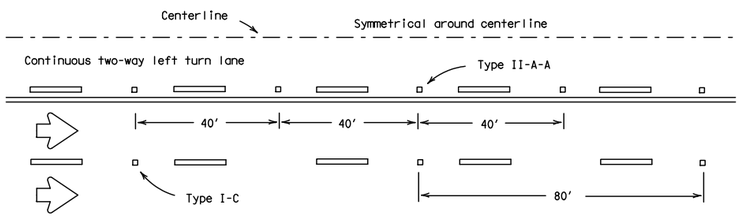


CENTERLINE FOR ALL TWO LANE ROADWAYS

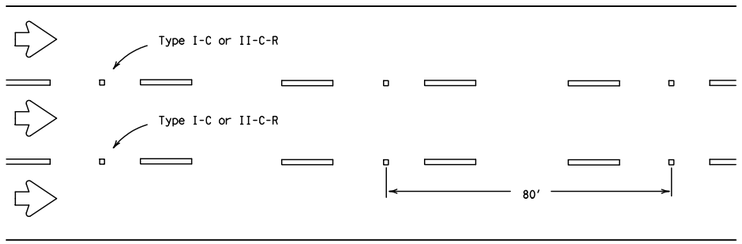


CENTERLINE & LANE LINES
FOR FOUR LANE TWO-WAY HIGHWAYS

Raised pavement marker Type I-C, clear face toward normal traffic, shall be placed on 80-foot centers.

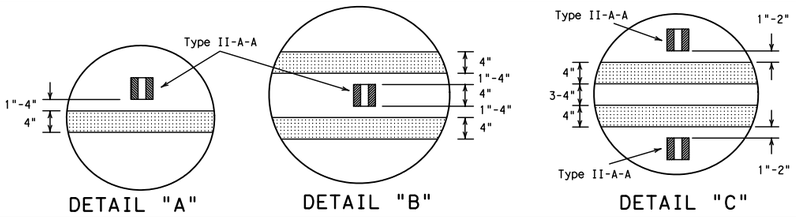


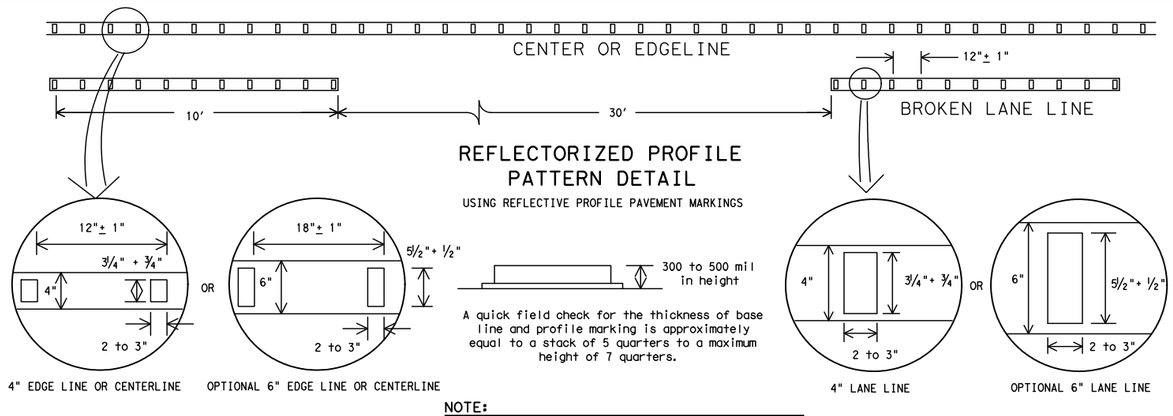
CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.





4" EDGE LINE OR CENTERLINE — OPTIONAL 6" EDGE OR CENTERLINE — 4" LANE LINE — OPTIONAL 6" LANE LINE

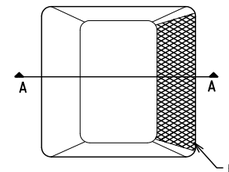
NOTE:
Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

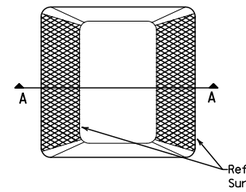
1. All raised pavement markers placed in broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

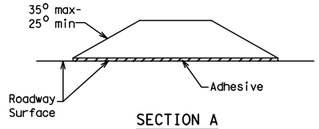
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)



Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS

Texas Department of Transportation
Traffic Operations Division

POSITION GUIDANCE USING RAISED MARKERS
REFLECTORIZED PROFILE MARKINGS

PM(2)-12

©TxDOT April 1977	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
REVISIONS	CONT	SECT	JOB	HIGHWAY
4-92 2-10				
5-00 2-12				
8-00	DIST	COUNTY		SHEET NO.
2-08	DAL	DALLAS		40

22B

DATE:
FILE:

EXHIBIT B

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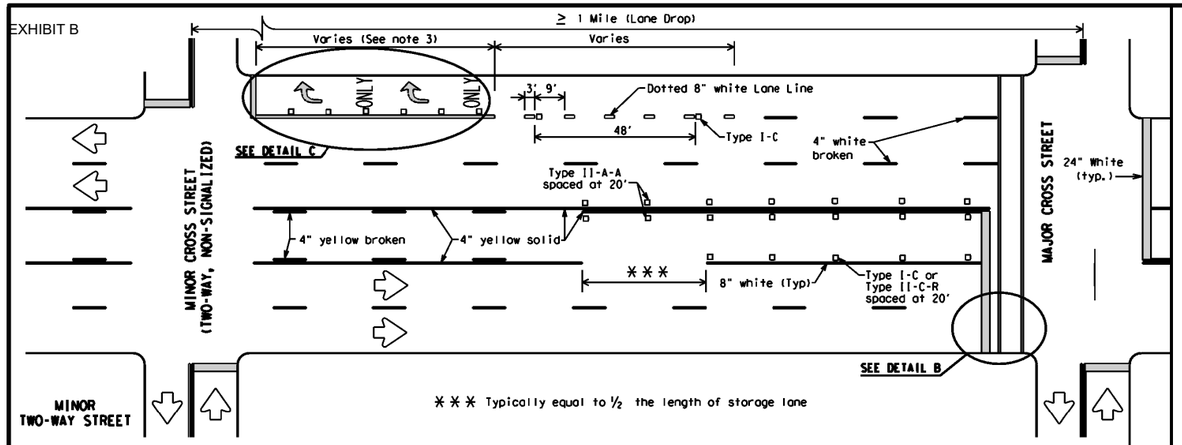
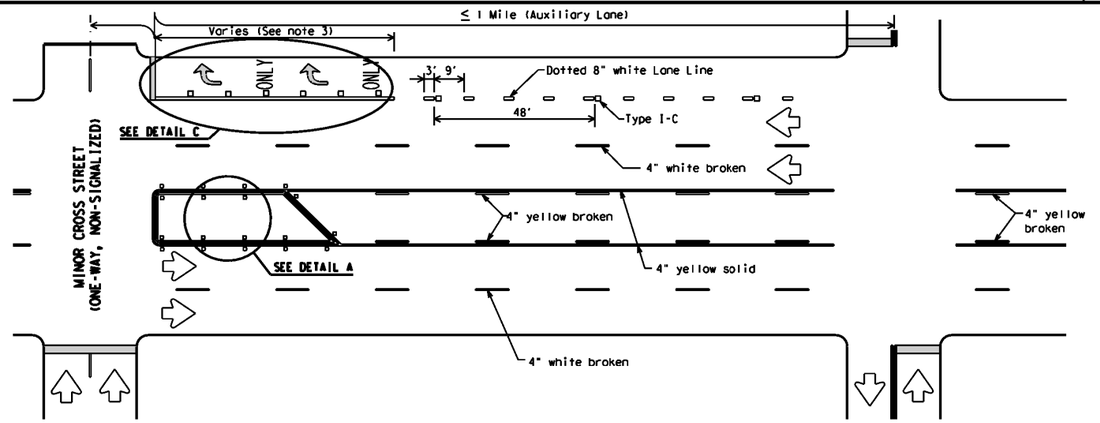
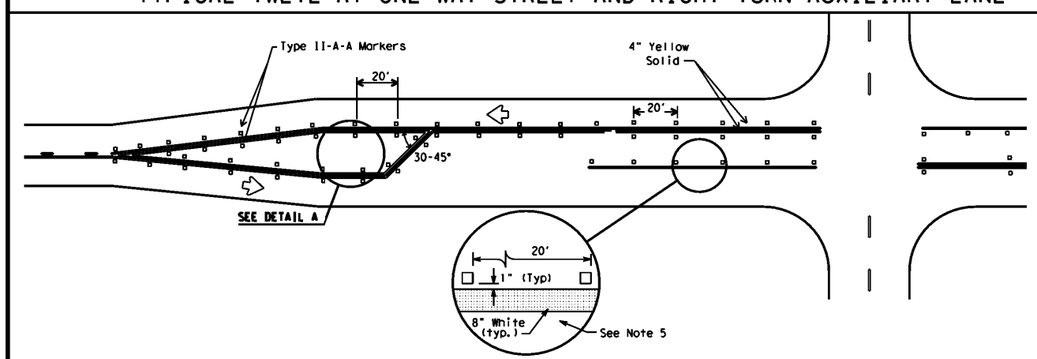


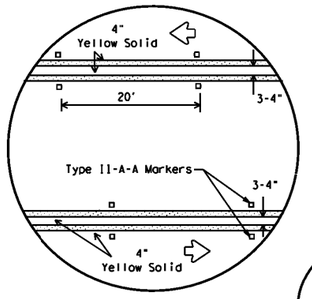
TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP



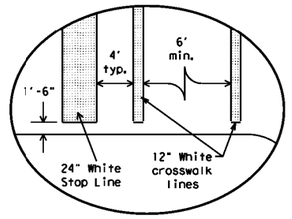
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



TYPICAL TWO-LANE HIGHWAY INTERSECTION WITH LEFT TURN BAYS

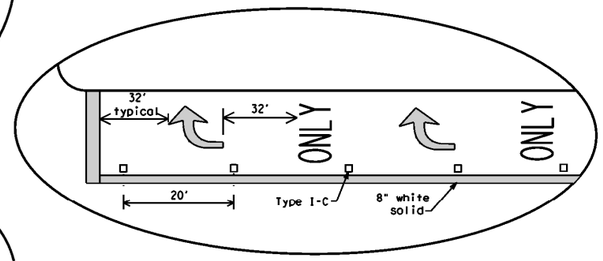


DETAIL A



Final placement of Stop Bar and Crosswalk shall be approved by the Engineer in the field.

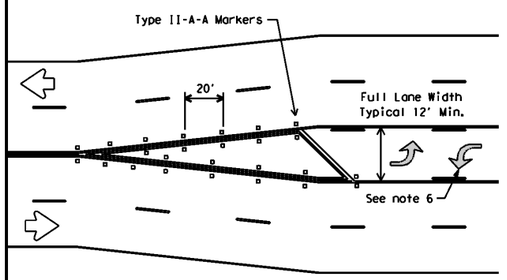
DETAIL B



DETAIL C

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY

GENERAL NOTES

1. Refer elsewhere in plans for additional RPM placement and details.
2. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows as shown in the Standard Highway Sign Designs for Texas.
3. When lane used word and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-width turn lane.
4. Other crosswalk patterns as shown in the "Texas Manual on Uniform Traffic Control Devices" may be used.
5. Raised pavement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Raised pavement marker Type II-C-R with divided highways and raised medians.
6. A two-way left-turn (TWLT) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

Texas Department of Transportation
Traffic Operations Division

PAVEMENT MARKINGS FOR TWO-WAY LEFT TURN LANES DIVIDED HIGHWAYS AND RURAL LEFT TURN BAYS

PM(3)-12

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REVISIONS	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
5-00 2-12	CONT	SECT	JOB	HIGHWAY
8-00				
3-03				
2-10	DIST	COUNTY		SHEET NO.
22C	DAL	DALLAS		41

DATE:
FILE:

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DATE:
FILE:

SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

SM RD SGN ASSM TY XXXXX(X)XX(X-XXXX)

Post Type

FRP = Fiberglass Reinforced Plastic Pipe (see SMD(FRP))
TWT = Thin-Walled Tubing (see SMD(TWT))
10BWG = 10 BWG Tubing (see SMD(SLIP-1) to (SLIP-3))
S80 = Schedule 80 Pipe (see SMD(SLIP-1) to (SLIP-3))

Number of Posts (1 or 2)

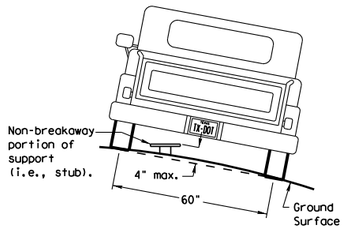
Anchor Type

UA = Universal Anchor - Concreted (see SMD(FRP) and (TWT))
UB = Universal Anchor - Bolted down (see SMD(FRP) and (TWT))
WS = Wedge Anchor Steel - (see SMD(TWT))
WP = Wedge Anchor Plastic (see SMD(TWT))
SA = Slipbase - Concreted (see SMD(SLIP-1) to (SLIP-3))
SB = Slipbase - Bolted Down (see SMD(SLIP-1) to (SLIP-3))

Sign Mounting Designation

P = Prefab. "Plain" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP))
T = Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))
U = Prefab. "U" (see SMD(SLIP-1) to (SLIP-3))
IF REQUIRED
1EXT or 2EXT = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))
BM = Extruded Wind Beam (see SMD(SLIP-1) to (SLIP-3))
WC = 1.12 #/ft Wing Channel (see SMD(SLIP-1) to (SLIP-3))
EXAL = Extruded Aluminum Sign Panels (see SMD(SLIP-3))

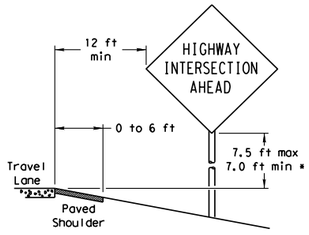
REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



To avoid vehicle undercarriage snagging, any substantial remains of a breakaway support, when it is broken away, should not project more than 4 inches above a 60-inch chord (i.e., typical space between wheel paths).

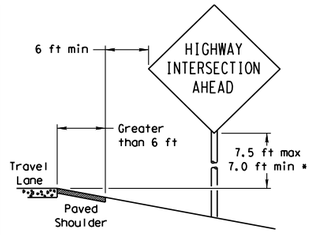
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

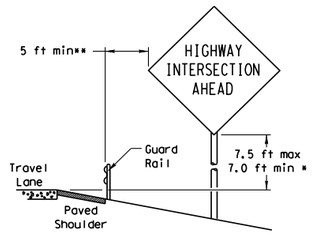
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



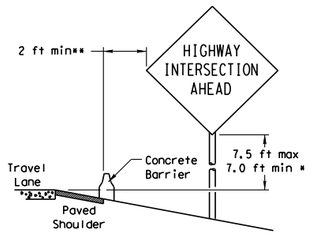
GREATER THAN 6 FT. WIDE

When the shoulder is greater than 6 ft in width, the sign must be placed at least 6 ft. from the edge of the shoulder.

BEHIND BARRIER



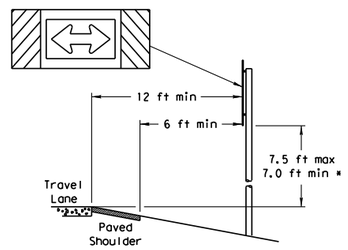
BEHIND GUARDRAIL



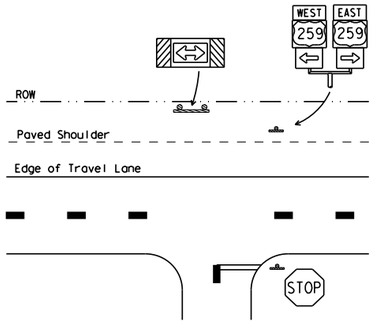
BEHIND CONCRETE BARRIER

**Sign clearance based on distance required for proper guard rail or concrete barrier performance.

T-INTERSECTION



When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.



* Signs shall be mounted using the following condition that results in the greatest sign elevation:

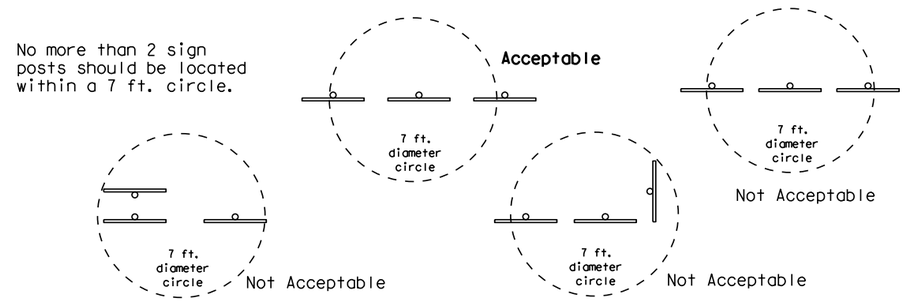
(1) a minimum of 7 to a maximum of 7.5 feet above the edge of the travel lane or

(2) a minimum of 7 to a maximum of 7.5 feet above the grade at the base of the support when sign is installed on the backslope.

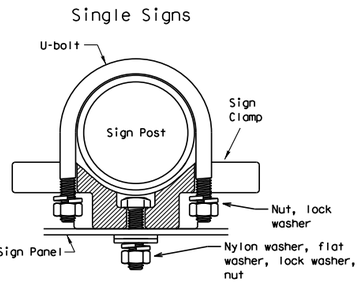
The maximum values may be increased when directed by the Engineer.

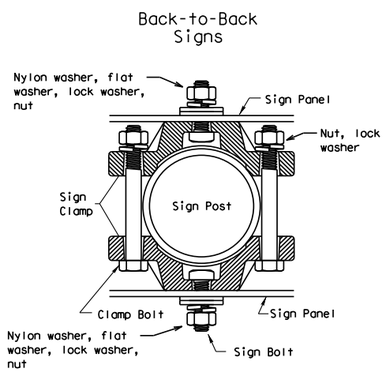
See the Traffic Operations Division website for detailed drawings of sign clamps, Triangular Slipbase System components and Wedge Anchor System components.

The website address is:
http://www.txdot.gov/publications/traffic.htm



TYPICAL SIGN ATTACHMENT DETAIL





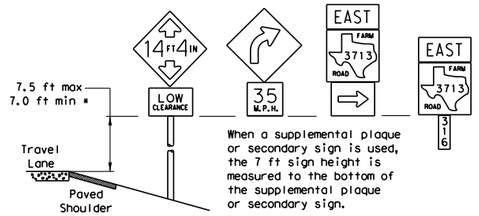
Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

When two sign clamps are used to mount signs back-to-back, use a 5/16-18 UNC galvanized hex head per ASTM A307 with nut and helical-spring lock washer. The approximate bolt lengths for various post sizes and sign clamp types are given in the table at right. The bolt length may need to be adjusted depending upon field conditions.

Sign clamps may be either the specific size clamp or the universal clamp.

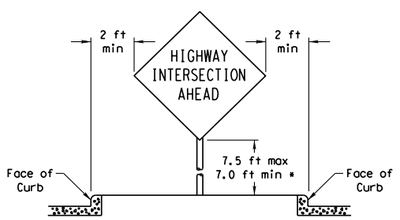
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



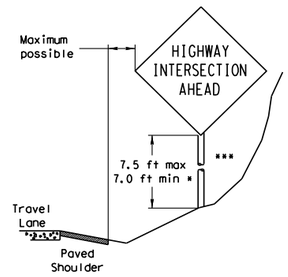
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



RESTRICTED RIGHT-OF-WAY

(When 6 ft min. is not possible.)



Right-of-way restrictions may be created by rocks, water, vegetation, forest, buildings, a narrow island, or other factors.

In situations where a lateral restriction prevents the minimum horizontal clearance from the edge of the travel lane, signs should be placed as far from the travel lane as practical.

*** Post may be shorter if protected by guardrail or if Engineer determines the post could not be hit due to extreme slope.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD(GEN)-08

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9-08 REVISIONS	CONT	SECT	JOB	HIGHWAY
	DIST	COUNTY		SHEET NO.
	DAL	DALLAS		42

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EXHIBIT B

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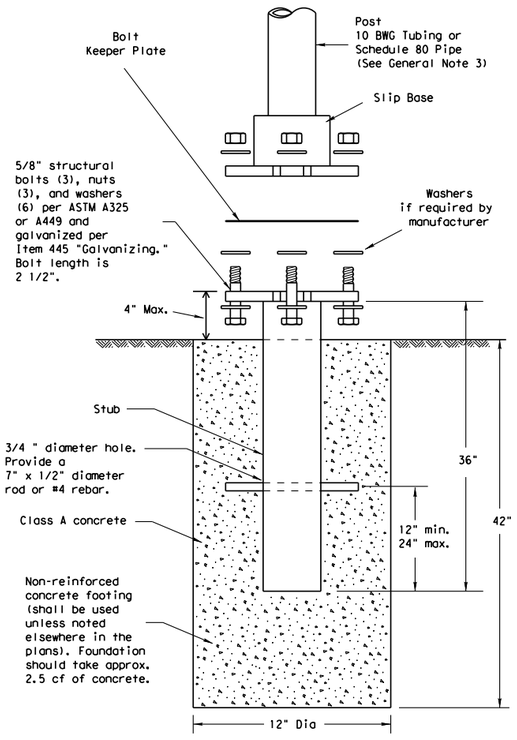
EXHIBIT B

TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



SM RD SGN ASSM TY XXXXX(X)SA(X-XXXX)

NOTE

There are various devices approved for the Triangular Slipbase System. Please reference the Material Producer List for approved slip base systems. http://www.txdot.gov/business/producer_list.htm The devices shall be installed per manufacturers' recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

1. Slip base shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
2. Material used as post with this system shall conform to the following specifications:
   10 BWG Tubing (2.875" outside diameter)
   - 0.134" nominal wall thickness
   - Seamless or electric-resistance welded steel tubing or pipe
   - Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
   - Other steels may be used if they meet the following:
     - 55,000 PSI minimum yield strength
     - 70,000 PSI minimum tensile strength
     - 20% minimum elongation in 2"
   - Wall thickness (uncoated) shall be within the range of 0.122" to 0.138"
   - Outside diameter (uncoated) shall be within the range of 2.867" to 2.883"
   - Galvanization per ASTM A123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.

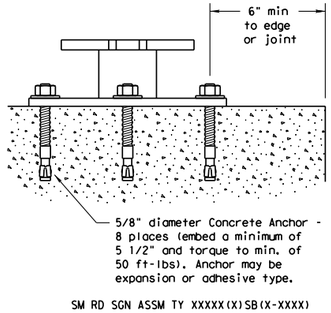
   Schedule 80 Pipe (2.875" outside diameter)
   - 0.276" nominal wall thickness
   - Steel tubing per ASTM A500 Gr C
   - Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
     - 46,000 PSI minimum yield strength
     - 62,000 PSI minimum tensile strength
     - 21% minimum elongation in 2"
   - Wall thickness (uncoated) shall be within the range of 0.248" to 0.304"
   - Outside diameter (uncoated) shall be within the range of 2.855" to 2.895"
   - Galvanization per ASTM A123
3. See the Traffic Operations Division website for detailed drawings of sign clamps and Texas Universal Triangular Slipbase System components. The website address is: http://www.txdot.gov/publications/traffic.htm
4. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

ASSEMBLY PROCEDURE

Foundation
1. Prepare 12-inch diameter by 42-inch deep hole. If solid rock is encountered, the depth of the foundation may be reduced such that it is embedded a minimum of 18 inches into the solid rock.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor-driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
3. Push the pipe end of the slip base stub into the center of the concrete. Rotate the stub back and forth while pushing it down into the concrete to assure good contact between the concrete and stub. Continue to work the stub into the concrete until it is between 2 to 4 inches above the ground.
4. Plumb the stub. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
5. The triangular slipbase system is multidirectional and is designed to release when struck from any direction.

Support
1. Cut support so that the bottom of the sign will be 7 to 7.5 feet above the edge of the travelway (i.e., edge of the closest lane) when slip plate is below the edge of pavement or 7 to 7.5 feet above slip plate when the slip plate is above the edge of the travelway. The cut shall be plumb and straight.
2. Attach sign to support using connections shown. When multiple signs are installed on the same support, ensure the minimum clearance between each sign is maintained. See SMD(SLIP-2) for clearances based on sign types.

CONCRETE ANCHOR



SM RD SGN ASSM TY XXXXX(X)SB(X-XXXX)

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. Heavy hex nut per ASTM A563, and hardened washer per ASTM F436. The stud bolt shall have a minimum yield and ultimate tensile strength of 50 and 75 KSI, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations. Top of bolt shall extend at least flush with top of the nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 5 1/2" minimum embedment, shall have a minimum allowable tension and shear of 3900 and 3100 psi, respectively.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08

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CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
DAL	DALLAS		43

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9-08

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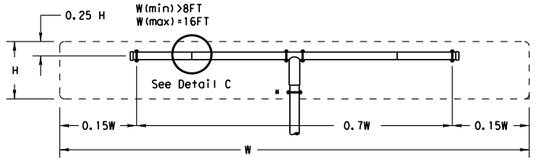
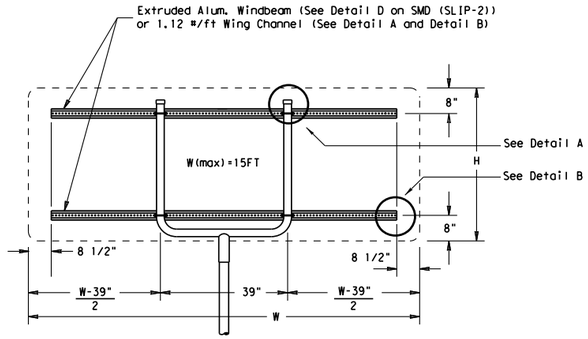


SM RD SGN ASSM TY XXXXX(1)XX(T-2EXT)
(* - See Note 12)



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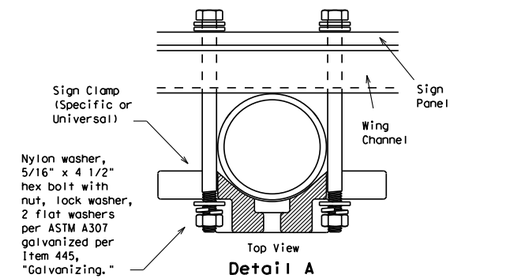
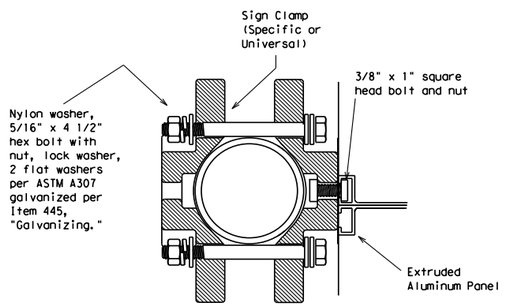
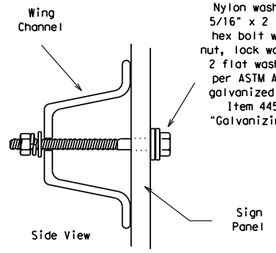


Detail A



Detail D
EXTRUDED ALUMINUM SIGN WITH T BRACKET



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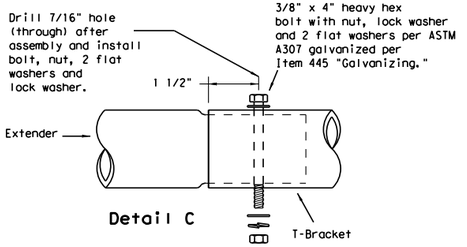
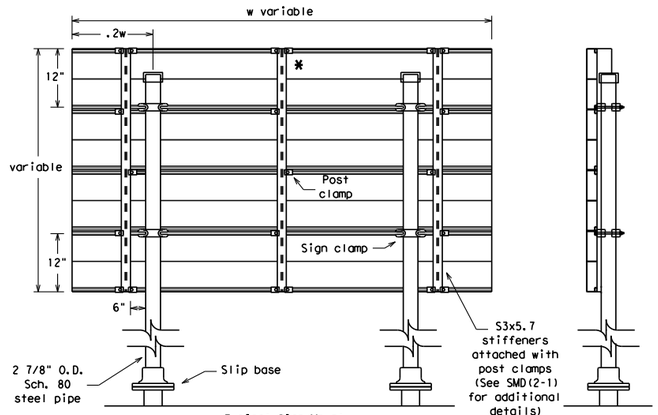


Detail C

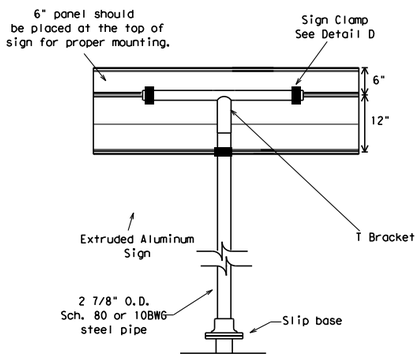
Splices shall only be allowed behind the sign substrate.



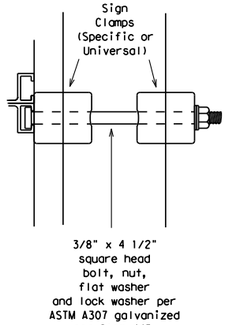
Typical Sign Mount

SM RD SGN ASSM TY S80(2)XX(P-EXAL)

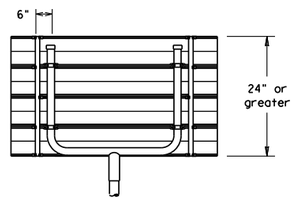
* Additional stiffener placed at approximate center of signs when sign width is greater than 10'.



Extruded Aluminum Sign
With T Bracket



Detail E



Use Extruded Alum. Windbeam as stiffeners
See SMD (2-1) for additional details

See Detail E
for clamp installation

GENERAL NOTES:

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

1. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
2. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
3. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
4. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
5. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
6. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
7. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
8. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
9. Sign blanks shall be the sizes and shapes shown on the plans.
10. Additional sign clamp required on the "T-bracket" post for 24 inch high signs. Place the clamp 3 inches above bottom of sign when possible.
11. Post open ends shall be fitted with Friction Caps.

REQUIRED SUPPORT		
	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-3)-08

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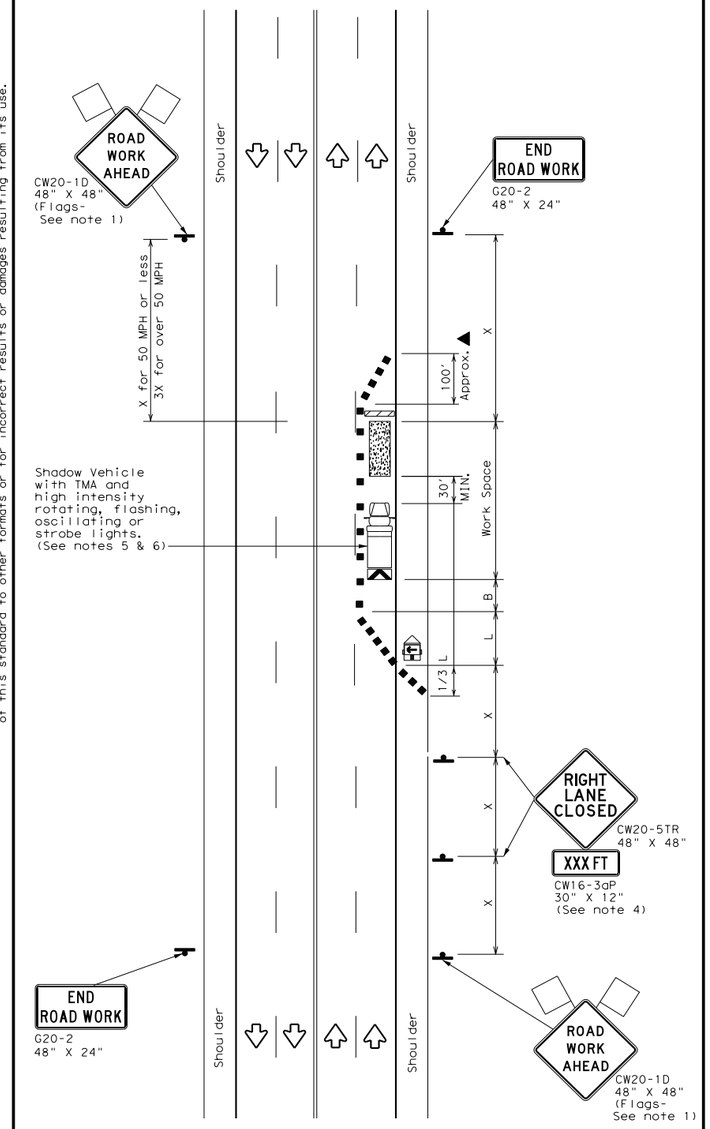
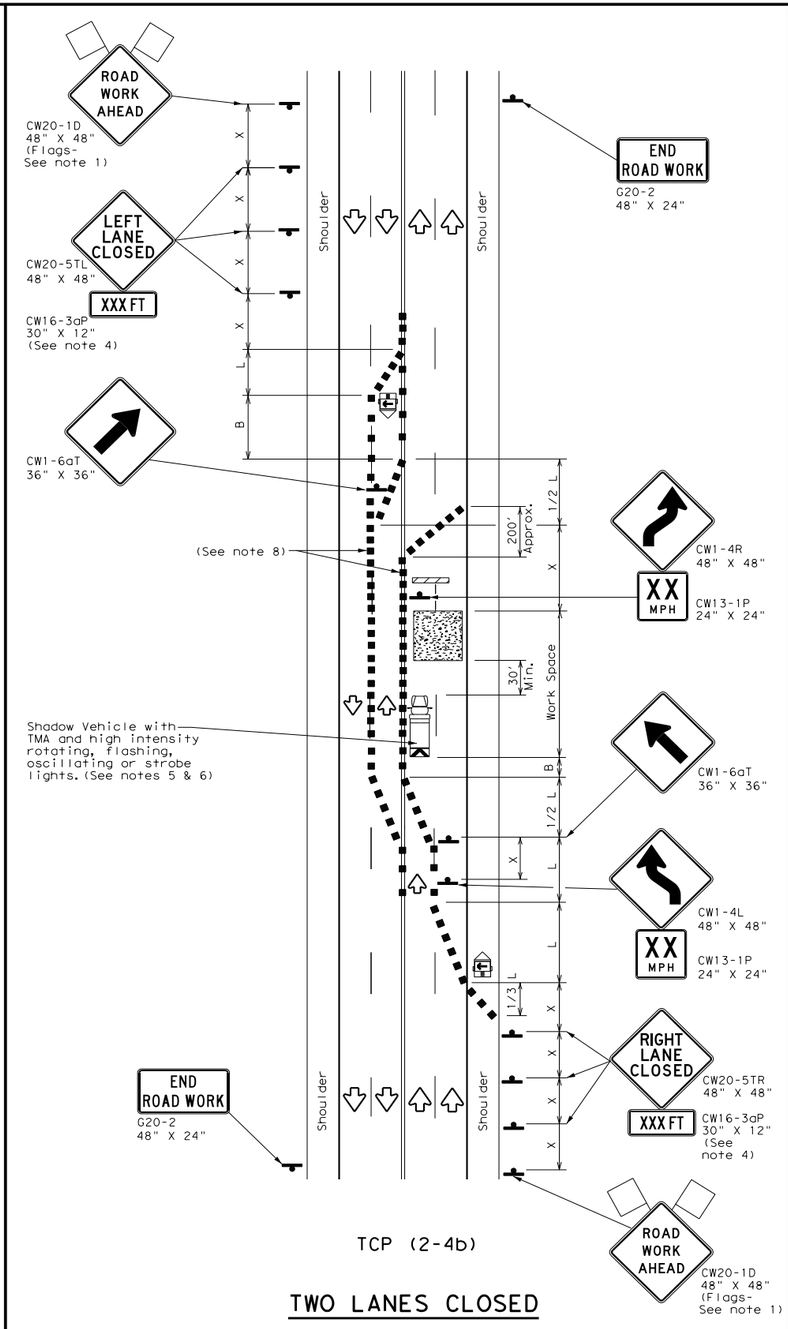


TCP (2-4a)

ONE LANE CLOSED



TCP (2-4b)

TWO LANES CLOSED

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L=WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only

** Taper lengths have been rounded off.
L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
		✓	✓	

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. The downstream taper is optional. When used, it should be 100 feet minimum length per lane.
4. For short term applications, when post mounted signs are not used, the distance legend may be shown on the sign face rather than on a CW16-3aP supplemental plaque.
5. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
6. Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

TCP (2-4a)

7. If this TCP is used for a left lane closure, CW20-5TL "LEFT LANE CLOSED"signs shall be used and channelizing devices shall be placed on the centerline to protect the work space from opposing traffic with the arrow board placed in the closed lane near the end of the merging taper.

TCP (2-4b)

8. For shorter durations where traffic is directed over a yellow centerline, channelizing devices which separate two-way traffic should be spaced on tapers at 20' or 15' if posted speeds are 35 mph or slower, and for tangent sections, at 1/2(S) where S is the speed in mph. This tighter devices spacing is intended for the area of conflicting markings, not the entire work zone.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

TCP(2-4)-18

FILE: tcp2-4-18.dgn	DN:	CK:	DW:	CK:
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	DAL	DALLAS		46

164

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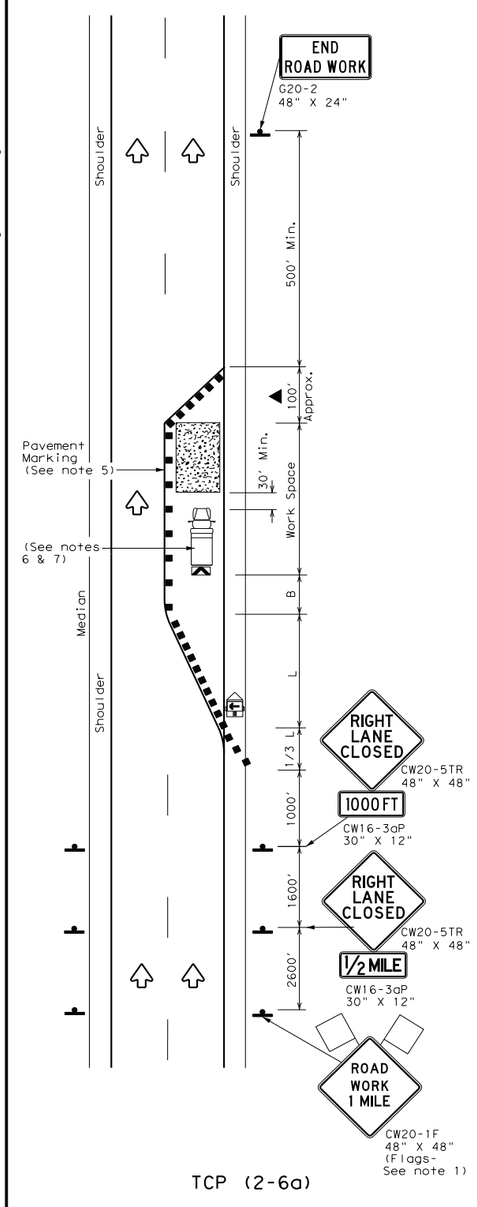
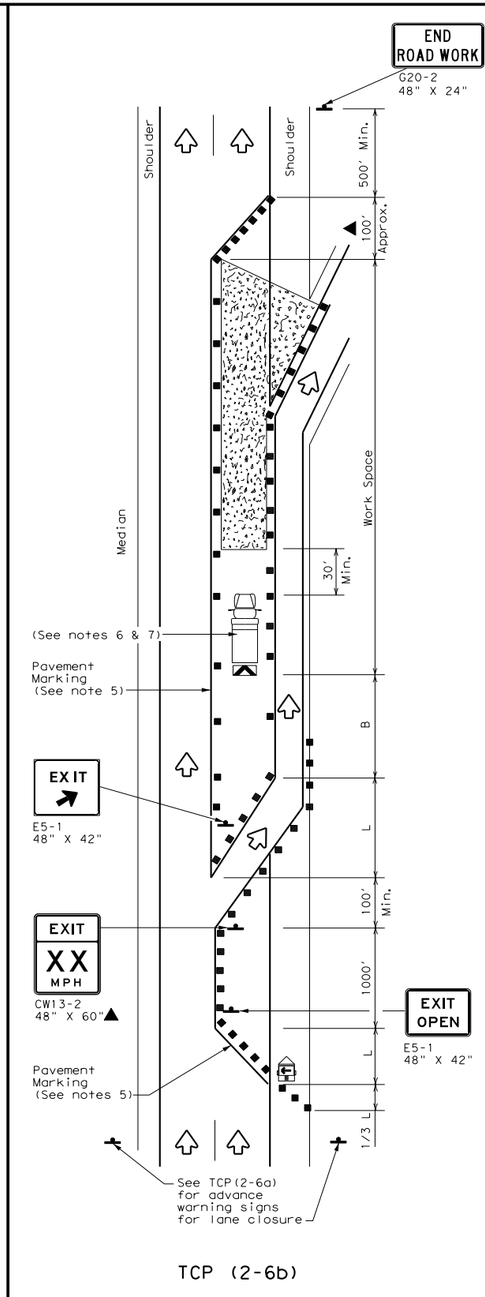


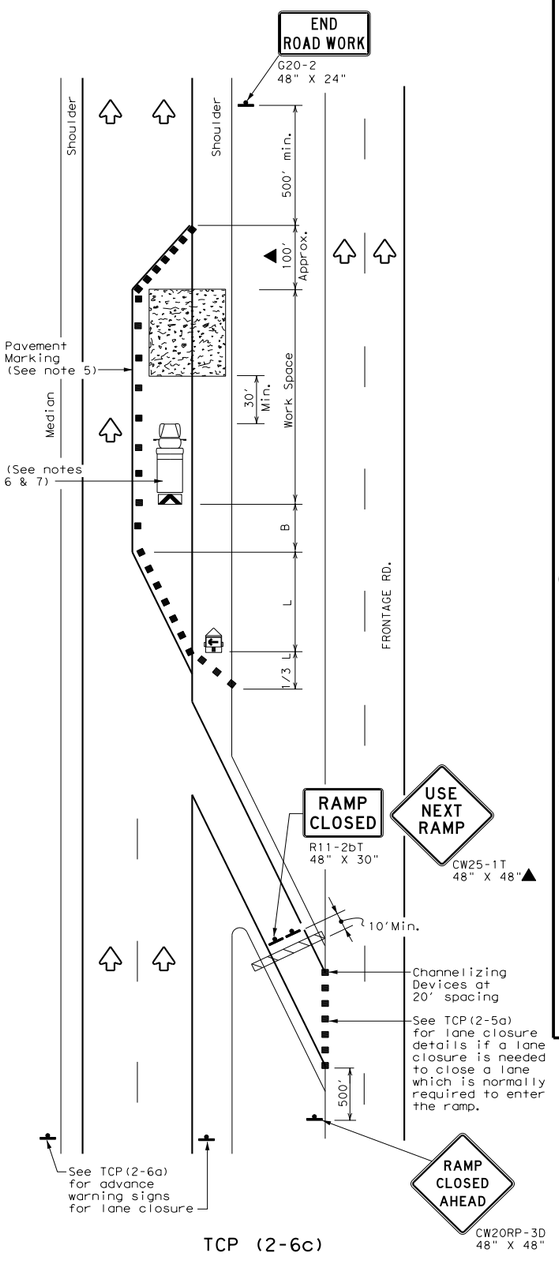
TCP (2-6a)

ONE LANE CLOSURE



TCP (2-6b)

LANE CLOSURE NEAR EXIT RAMPS



TCP (2-6c)

LANE CLOSURE NEAR ENTRANCE RAMPS

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L=WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only

** Taper lengths have been rounded off.
L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
			✓	✓

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. Channelizing devices used to close lanes may be supplemented with the Chevron Alignment Sign placed on every other channelizing device. Chevrons may be attached to plastic drums as per BC Standards.
4. Channelizing devices used along the work space or along tangent sections may be supplemented with vertical panels (VP) placed on everyother channelizing device. If night time conditions make it difficult to see at least two VPs, the VPs may be placed on each channelizing device.
5. The placement of pavement markings may be omitted on Intermediate-term stationary work zones with the approval of the Engineer.
6. Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
7. Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

Texas Department of Transportation — Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON DIVIDED HIGHWAYS

TCP(2-6)-18

FILE: tcp2-6-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 2-12 1-97 2-18	DIST	COUNTY		SHEET NO.
	DAL	DALLAS		47

166

DATE:
FILE:

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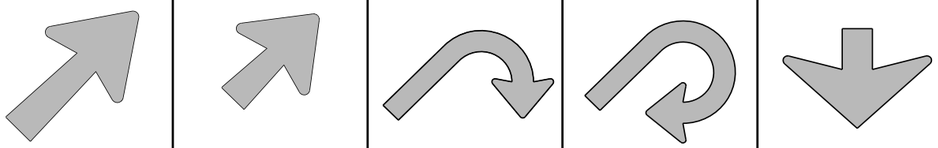
EXHIBIT B

ARROW DETAILS

for Large Ground-Mounted and Overhead Guide Signs



TYPE	LETTER SIZE	USE
A-1	10.67" U/L and 10" Caps	Single Lane Exits
A-2	13.33" U/L and 12" Caps	
A-3	16" & 20" U/L	
B-1	10.67" U/L and 10" Caps	Multiple Lane Exits
B-2	13.33" U/L and 12" Caps	
B-3	16" & 20" U/L	

CODE	USED ON SIGN NO.
E-3	E5-1aT
E-4	E5-1bT

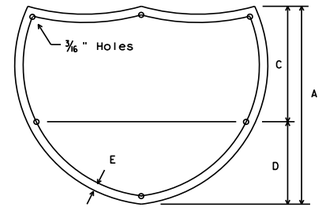
NOTE

Arrow dimensions are shown in the "Standard Highway Sign Designs for Texas" manual.

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.

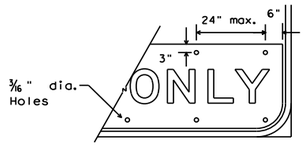
http://www.txdot.gov/

SIGN BLANK PUNCHING DETAILS FOR ATTACHMENTS WHEN SPECIFIED TO BE TYPE A ALUMINUM SIGNS (FOR MOUNTING TO GUIDE SIGN FACE)

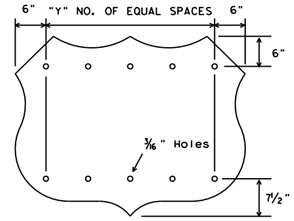


INTERSTATE ROUTE MARKERS

A	C	D	E
36	21	15	1 1/2
48	28	20	1 3/4

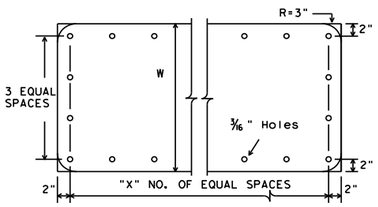


EXIT ONLY PANEL



U.S. ROUTE MARKERS

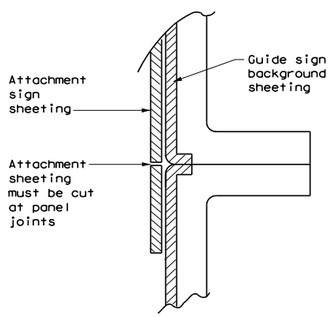
Sign Size	"Y"
24x24	2
30x24	3
36x36	3
45x36	4
48x48	4
60x48	5



STATE ROUTE MARKERS

No. of Digits	W	X
4	24	4
4	36	5
4	48	6
3	24	3
3	36	4
3	48	5

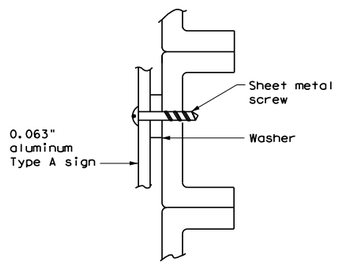
MOUNTING DETAILS OF ATTACHMENTS TO GUIDE SIGN FACE ("EXIT ONLY" AND "LEFT EXIT" PANELS, ROUTE MARKERS AND OTHER ATTACHMENTS)



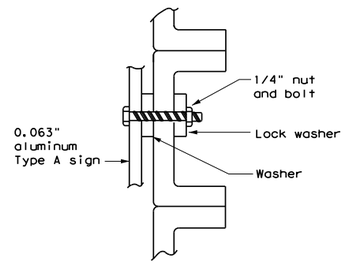
DIRECT APPLIED ATTACHMENT

NOTE:

1. Sheeting for legend, symbols, and borders must be cut at panel joints.
2. Direct applied attachment signs will be subsidiary to "Aluminum Signs" or "Fiberglass Signs".



SCREW ATTACHMENT



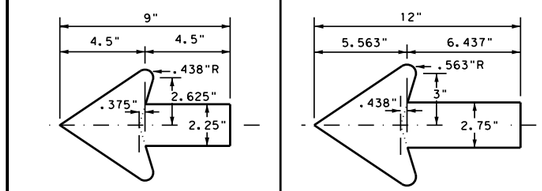
NUT/BOLT ATTACHMENT

NOTE:

Furnish Type A aluminum sign attachments only when specified in the plans. These signs will be paid for under "Aluminum Signs".

ARROW DETAILS

for Destination Signs (Type D)



Standard arrow to be used with 6 inch letters.

Standard arrow to be used with 8 inch letters.

Texas Department of Transportation

Traffic Operations Division Standard

TYPICAL SIGN REQUIREMENTS

TSR(5)-13

FILE: tsr5-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT October 2003	CONT	SECT	JOB	HIGHWAY
REVISIONS				
12-03 7-13	DIST	COUNTY		SHEET NO.
9-08	DAL	DALLAS		48

5

DATE:
FILE:

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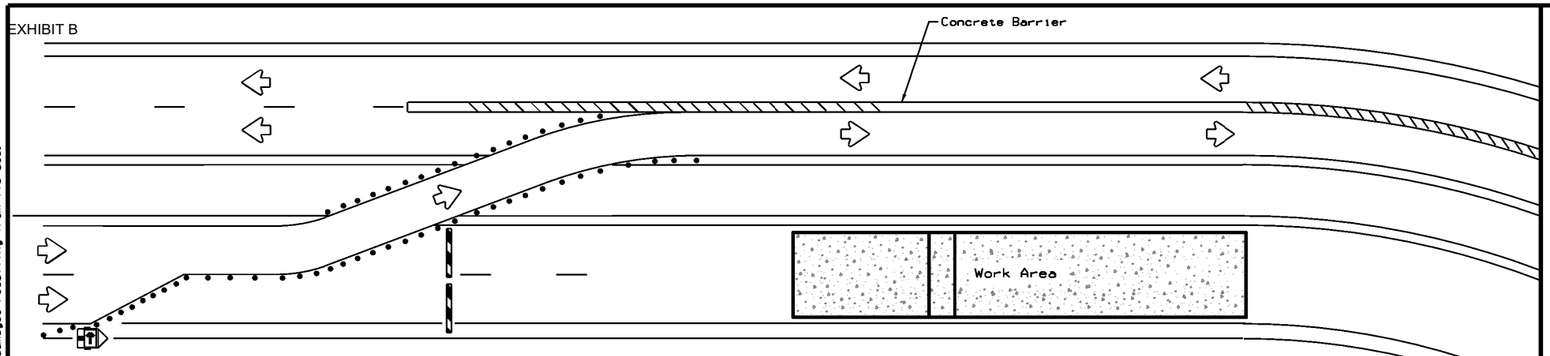
EXHIBIT B



NOTES:

1. Length of Safety Glare screen will be specified elsewhere in the plans.
2. The cumulative nominal length of the modular safety glare screen units shall equal the length of the individual sections of temporary concrete traffic barrier on which they are installed so the joint between barrier sections will not be spanned by any one safety glare screen unit.
3. Screen Panel/blades will be designed such that reflective sheeting conforming with Departmental Material Specification DMS-8300, Sign Face Materials, Type B or C Yellow, minimum size of 2 inches by 12 inches can be attached to the edge of the panel/blade. The sheeting shall be attached to one glare screen panel/blade per section of concrete barrier not to exceed a spacing of 30 feet. Barrier reflectors are not necessary when panel/blades are installed with reflective sheeting as described.
4. Payment for these devices will be under statewide Special Specification "Modular Glare Screens for Headlight Barrier."
5. This detail is only intended to show types of locations where Glare Screens would be appropriate. Required signing and other devices shall be as shown elsewhere in the plans.

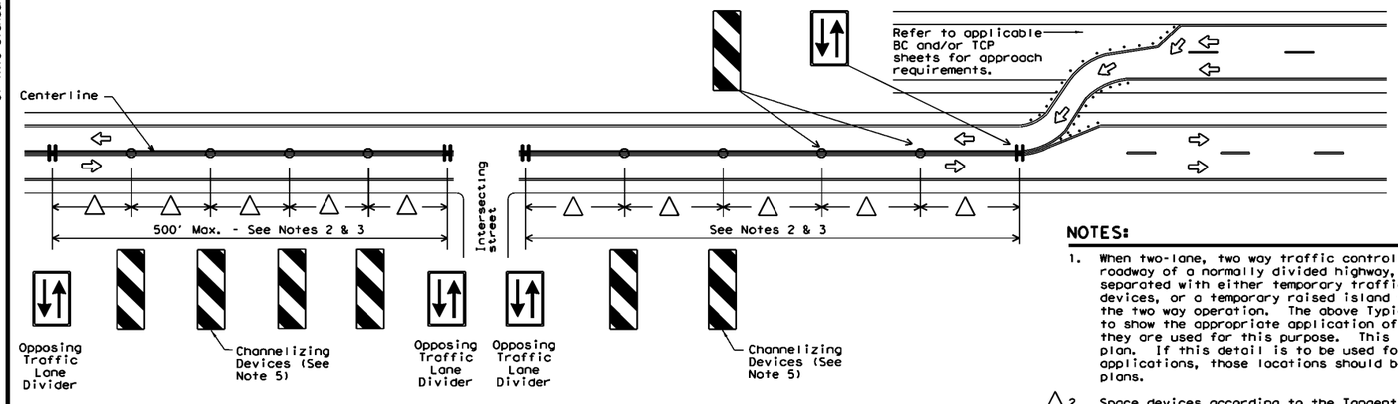
BARRIER DELINEATION WITH MODULAR GLARE SCREENS

LEGEND	
	Type 3 Barricade
• • •	Channelizing Devices
	Trailer Mounted Flashing Arrow Board
	Sign
\\\\	Safety glare screen

DEPARTMENTAL MATERIAL SPECIFICATIONS	
SIGN FACE MATERIALS	DMS-8300
DELINEATORS AND OBJECT MARKERS	DMS-8600
MODULAR GLARE SCREENS FOR HEADLIGHT BARRIER	DMS-8610

Only pre-qualified products shall be used. A copy of the Compliant Work Zone Traffic Control Devices List" CWZTCD)describes pre-qualified products and their sources and may be found at the following web address:

http://www.txdot.gov/business/resources/producer-list.html



VERTICAL PANELS & OPPOSING TRAFFIC LANE DIVIDERS (OTLD) SEPARATING TWO-WAY TRAFFIC ON NORMALLY DIVIDED HIGHWAYS

NOTES:

1. When two-lane, two way traffic control must be maintained on one roadway of a normally divided highway, opposing traffic shall be separated with either temporary traffic barriers, channelizing devices, or a temporary raised island throughout the length of the two way operation. The above Typical Application is intended to show the appropriate application of channelizing devices when they are used for this purpose. This is not a traffic control plan. If this detail is to be used for other types of roads or applications, those locations should be stated elsewhere in the plans.
2. △ Space devices according to the Tangent Spacing shown on the Device Spacing table on BC(9) but not exceeding 100'.
3. Every fifth device should be an OTLD except when spaced closer to accommodate an intersection. An OTLD should be the first device on each side of intersecting streets or roads.
4. Locations where surface mount bases with adhesives or self-righting devices will be required in order to maintain them in their proper position should be noted elsewhere in the plans.
5. Channelizing devices are to be vertical panels, 42" cones or tubular markers that are at least 36" tall. Tubular markers used to separate traffic should have a rubber base weighing at least 30 pounds. Tubular markers that are 42" tall or more shall have four bands of reflective material as detailed for 42" cones on BC(10). Tubular markers less than 42" but at least 36" tall shall have three bands of 3" wide white reflective material spaced 2" apart. Reflective material shall meet DMS-8300, Type A.

DATE:
FILE:

Texas Department of Transportation | Traffic Operations Division Standard

TRAFFIC CONTROL PLAN TYPICAL DETAILS

WZ(TD)-17

FILE: wztd-17.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-98 2-17 3-03 7-13	DIST	COUNTY		SHEET NO.
	DAL	DALLAS		49

110

EXHIBIT

SURFACE PREPARATION ITEM 160* TOPSOIL SY / ITEM 161* COMPOST MANUF. TOPSOIL (BOS) (4") SY

SURFACE PREPARATION
Prepare planting area surface BEFORE placing Topsoil, Compost, Fertilizer, Seed and/or Sod. Once project area has been completed to final lines, grade and compaction, remove objectionable materials from planting area surface and cultivate existing surface to a depth of 4 inches, unless otherwise specified or directed.

Refer to Items 160 and 161 of TxDOT 2014 Standard Specifications* for specifications, dimensions, volumes, and measurements that have been modified or not shown in plans. Materials and construction shall meet all specifications.

TOPSOIL NOTES:
1. When Topsoil is specified under Item 160, use suitable material salvaged from the project ROW in accordance with Item 160 specifications, and/or secure additional good material from approved sources.
2. Topsoil shall include only the top 6 inches of its native surface, and be easily cultivated, fertile, erosion-resistant and free of objectionable materials.
3. Topsoil obtained from sites outside of the ROW must come from approved sources and have a pH between 5.5 and 8.5 su.
4. Place Topsoil on pre-cultivated surface, spread to a uniform loose cover at thickness specified, and shape per plans. Water and roll the finished surface with a light roller or other suitable equipment per Item 160.3; do not over-compact.

COMPOST NOTES:
1. When Compost Manufactured Topsoil (4") is specified under Item 161, use compost meeting all requirements of Item 161.2 and Table 1. Provide quality control (QC) documentation and obtain Engineer approval prior to compost delivery.
2. Contractor shall provide tickets/invoices that document material type, quantity and placement for all compost delivered.
3. Additional topsoil may be required to be imported to achieve the compost/topsoil mix ratio. Topsoil must meet Item 160 specifications.

APPLICATION OF COMPOST MANUFACTURED TOPSOIL (4")
AFTER Surface Preparation, uniformly spread a 1-inch layer of compost on-grade with 3 inches topsoil over pre-cultivated planting area. (25% compost and 75% topsoil = 1" compost and 3" topsoil.) Then mix compost and topsoil together by cultivating the compost into the topsoil (by till or disk) to a 4-inch (4") depth. Roll the finished surface with a light corrugated drum; do not over-compact.

FERTILIZER ITEM 166* FERTILIZER AC

SOIL ANALYSIS FOR FERTILIZER APPLICATION RATE
Unless otherwise stated in the plans, Contractor shall perform at least one soil analysis on each project before fertilization, and submit results to Engineer with recommended fertilizer rates based on soil analysis. Engineer may direct sample location(s). Soil analysis may be waived if both compost and sod are used on entire project.

FERTILIZER NOTES:
1. Refer to Item 166 of TxDOT 2014 Standard Specifications* for specifications, dimensions, volumes, and measurements that have been modified or not shown in plans. Materials and construction shall meet all specifications.
2. Apply fertilizer BEFORE seeding, or AFTER placing sod.
3. Use fertilizer containing nitrogen (N), phasphoric acid (P) and potash (K) nutrients, unless otherwise specified. At least 50% of the Nitrogen component shall be a slow-release sulfur-coated urea as described in Item 166.3. Do not apply more than 60 lbs Nitrogen per acre without Engineer concurrence.
4. Deliver fertilizer in bags, clearly labeled to show contents, unless otherwise specified or approved prior to delivery. When non-bagged, loose fertilizer is approved, provide documentation for each load of material delivered, to validate authenticity of the material.
5. Apply fertilizer uniformly, as a dry, granular material, essentially dust-free, and do not mix with water for application as a slurry.
6. When both temporary and permanent seeding are specified for the same area, apply half of the required fertilizer before the temporary seeding operation and the other half before the permanent seeding operation.

SODDING FOR EROSION CONTROL ITEM 162* BLOCK SOD (BERMUDA) SY

BLOCK OR ROLL SOD	COMMON NAME	BOTANICAL NAME
	Common Bermuda Grass	Cynodon dactylon

SODDING NOTES:
1. Refer to Item 162 of TxDOT 2014 Standard Specifications* for specifications, dimensions, volumes, and measurements that have been modified or not shown in plans. Materials and construction shall meet all specifications.
2. Place sod between the average date of the last freeze in the Spring and 6 weeks before the average date of the first freeze in the Fall, per the Texas Almanac for the project area.
3. Place sod only AFTER soil surface preparation is complete as detailed in this sheet. Dry soil may require pre-watering.
4. Place all sod (blocks or rolls) within 24 hours of delivery to the site, and keep moist from the time it is dug up until it is planted. Sod with dried roots will not be accepted.
5. Place sod with joints alternating on each row to prevent all joints from lining up, and place blocks firmly against adjacent blocks. Roll, tamp and trim sod per Item 162.3.
6. Place fertilizer promptly AFTER sodding operation is complete in each area.
7. Water sod immediately following placement, and continue Vegetative Watering per Item 168.

VEGETATIVE WATERING FOR ESTABLISHING SEED AND SOD ITEM 168* VEGETATIVE WATERING MG

WATERING SCHEDULE			
SEASON (Usual Months)	RATE	TIME SCHEDULE	TOTAL WATER ESTIMATE
SPRING & FALL (March, April, May, October)	7,000 gallons/acre per working day	Vegetative watering for seed shall begin on the day after rainfall described below and continue for 60 consecutive working days; vegetative watering for sod shall begin on the day the sod is placed and continue for a minimum of 15 consecutive working days.	420,000 gallons/acre (60 working days)
SUMMER (June, July, August, September)	12,000 gallons/acre per working day		720,000 gallons/acre (60 working days)
WINTER (November through February)	1,000 gallons/acre per working day	Vegetative watering for seed and/or sod shall begin on the day after placement for 15 consecutive working days	15,000 gallons/acre (15 working days)
Notes: Rate and frequency may be adjusted, with the approval of the Engineer, to meet site conditions (especially with sod). For informational purposes only: 1,000 gallons equals 1 MG			

VEGETATIVE WATERING NOTES:
1. Refer to Item 168 of TxDOT 2014 Standard Specifications* for specifications, dimensions, volumes, and measurements that have been modified or not shown in plans. Materials and construction shall meet all specifications.
2. Use clean water free of industrial waste and other substances harmful to vegetation growth, per Item 168.2.
3. Use Vegetative Watering to keep the seed bed moist during germination; not to provide initial watering. After drill seeding, postpone watering operations until site receives at least 1/2-inch of natural rainfall in a single day. Delay watering operations for warm season grasses until soil temperature exceeds 70 degrees F.
4. For sod, water immediately.
5. All water distribution equipment shall be furnished and operated to provide water at a uniform and controllable rate. Use a metering device on all watering equipment.
6. Evenly distribute water over entire area designated for seeding and/or sodding, using even spray patterns that do not disturb seed bed and/or dislodge seed from seed bed.
7. Do not water between the hours of 12:00 p.m. and 6:00 p.m. when daytime temperatures exceed 95 degrees F.
8. After initial establishment period, continue intermittent watering of newly established seed or sod at a rate of approximately 1-inch water/week, during summer months until end of contract.
9. If 1/4-inch or more of rainfall occurs on site on any given working day, no vegetative watering will be needed on that working day. (Note: 1/4-inch rain equals 7,000 gallons of water per acre.)
10. Should the Contractor fail to apply the specified amount of water within the time allowed, any seed or sod in poor condition shall be replaced, fertilized, and watered at Contractor's expense.

SEEDING FOR EROSION CONTROL ITEM 164* DRILL SEEDING AC

RECOMMENDED PLANTING SEASON	PERMANENT RURAL SEED MIX ITEM 164 - DRILL SEEDING (PERM) (RURAL) (CLAY)	Pure Live Seed Rate**	PERMANENT URBAN SEED MIX ITEM 164 - DRILL SEEDING (PERM) (URBAN) (CLAY)	Pure Live Seed Rate**	TEMPORARY DRILL SEED MIX ITEM 164 - DRILL SEEDING (TEMP) (WARM OR COOL)	Pure Live Seed Rate**
WARM SEASON Mar.15th, April, May, June, July, August, Sept. 15th	Green Sprangletop (Van Horn)	- 1.0 lbs/AC	Green Sprangletop (Leptochloa dubia)	- 0.3 lbs/AC	Foxtail Millet (Setaria italica)	- 34 lbs/AC
	Sideoats Grama (Haskell)	- 1.0 lbs/AC	Sideoats Grama (El Reno) (Bouteloua curtipendula)	- 3.6 lbs/AC		
	Texas Grama (Atascosa)	- 1.0 lbs/AC	Buffalograss (Texoka) (Buchloe dactyloides)	- 1.6 lbs/AC		
	Hairy Grama (Chaparral)	- 0.4 lbs/AC	Bermudagrass (Cynodon dactylon)	- 2.4 lbs/AC		
	Shortspike Windmillgrass (Welder)	- 0.2 lbs/AC				
	Little Bluestem (OK Select)	- 0.8 lbs/AC				
	Purple Prairie Clover (Cuero)	- 0.6 lbs/AC				
	Engelmann Daisy (Eldorado)	- 0.75 lbs/AC				
	Illinois Bundleflower	- 1.3 lbs/AC				
	Awnless Bushsunflower (Plateau)	- 0.2 lbs/AC				
COOL SEASON Sept 16th, Oct, Nov, Dec, Jan, Feb, Mar 14th					Tall Fescue (Festuca arundinaceae)	- 4.5 lbs/AC
					Western Wheatgrass (Agropyron smithii)	- 5.6 lbs/AC
					Red Winter Wheat (Triticum aestivum)	- 34 lbs/AC
					Cereal Rye	- 34 lbs/AC

SEEDING NOTES:
1. When seeding is specified under Item 164, refer to TxDOT 2014 Standard Specifications* for specifications, dimensions, volumes, and measurements that have been modified or not shown. Materials and construction shall meet specifications.
2. Conduct seeding upon completion of each applicable construction stage (dependent upon planting season requirements), without compensation for additional move-ins.
3. Place seed AFTER preparing planting area surface. Refer to Surface Preparation detail this sheet, as well as Topsoil Item 160 and Compost Manufactured Topsoil Item 161 when specified. Apply fertilizer per Item 166 BEFORE seeding, per specifications and this sheet, to help drill the fertilizer into the soil.
4. When temporary grasses are well-established and more than 2 inches tall, mow planting area before seeding permanent grasses; mowing for this purpose will be subsidiary. When vegetation is not already well-established, cultivate planting area to a depth as described in Item 164.3, before temporary seeding and before permanent seeding.
5. Seed material must be appropriate to the location, soil type and season. Use the seed mix species and pure live seed rates designated in Tables 1-4 of the TxDOT 2014 Standard Specifications* for Item 164, unless otherwise specified.
6. All seed shall meet labeling, delivery, analysis, and testing requirements described in Item 164.2.1. Deliver seed in labeled, unopened bags or containers to Engineer prior to planting.
7. Uniformly plant seed over the designated planting area, along the contour of slopes, and drill seed to a depth as described in Item 164.3.4.
8. Hydroseeding may be allowed, when specified or Engineer concurs.
9. Implement and continue Vegetative Watering per the schedule, rate and volume specified under Item 168.

****Note:** The amount of Pure Live Seed (PLS) in one pound of bulk seed is based on three factors: % Purity, % Germination, and % Dormant. Use the following formula to calculate PLS in bulk seed: PLS = % Purity X (% Germination + % Dormant)
Ensure that the specified amount of pure live seed is placed.

ROADSIDE MOWING ITEM 730* PROJECT MAINTENANCE AC

MOWING NOTES:
1. During project construction, once seed is established, use mowing to promote permanent grasses by mowing any remaining temporary grasses.
2. Also mow established turf and ROW grasses in designated areas of project limits as specified or directed by Engineer.
3. Remove litter and debris prior to mowing.
4. Do not mow on wet ground when soil rutting can occur.
5. Hand-trim around obstructions and stormwater control devices as needed.
6. Maintain paved surfaces free of tracked soils and clipped vegetation.

SEQUENCE OF WORK:
- CULTIVATE SURFACE SOIL.
- PREPARE / PLACE TOPSOIL, OR
- PREPARE / PLACE COMPOST MANUFACTURED TOPSOIL.
- APPLY FERTILIZER AND THEN PLACE SEEDING, OR
- PLACE SOD AND THEN APPLY FERTILIZER.
- CONDUCT VEGETATIVE WATERING.
- CONDUCT ROADSIDE MOWING, AS DIRECTED.

TXDOT REFERENCE MATERIALS:
- "STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MAINTENANCE OF HIGHWAYS, STREETS, AND BRIDGES" 2014
- "A GUIDANCE TO ROADSIDE VEGETATION ESTABLISHMENT" 2004
- ONLINE TRAINING COURSE: MNT415 REVEGETATION DURING CONSTRUCTION
- DALLAS DISTRICT "VEGETATION ESTABLISHMENT GUIDELINES"

Texas Department of Transportation
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VEGETATION ESTABLISHMENT SHEET

(DALLAS DISTRICT)

TEMPLATE REVISION DATE: 02/21/19

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
CPB	6	(See Title Sheet)		
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
XXX	TEXAS	DALLAS	DALLAS	50
CHECK	CONTROL	SECTION	JOB	
XXX				
CHECK				
XXX				

DATE

STAFF REPORT

MEETING: City Council - 20 Apr 2021

TITLE:
Consider an Ordinance amending Section 19-163 of the City Ordinance to add Frank Keasler Blvd to the list of no-through-truck zones.

FY 2019 CITY COUNCIL ORGANIZATIONAL WORKPLAN:

- **2. Create high quality neighborhoods and parks**
  - **Goal 2: Maximize city and community resources to improve quality of life in a sustainable manner.**

STAFF RESPONSIBLE:
Bryan G. Ramey II, P.E., Director of Public Works

BACKGROUND/HISTORY:
Following a request by Councilwoman Jameson, Staff performed a traffic study of truck traffic along Frank Keasler Blvd between N. Cedar Ridge Dr and N. Duncanville Rd. On 04/06/2021, Staff presented Council with the results of the traffic study. The study revealed the following:

1. Total vehicle traffic volumes along both westbound and eastbound Frank Keasler Blvd are relatively the same; however, eastbound truck traffic is ten times greater than the westbound truck traffic. It appears trucks are using this road as a shortcut.
2. Eastbound Frank Keasler Blvd (Residential) experiences the same percentage of truck traffic, 1.1% of total traffic, as along N. Duncanville Rd (Arterial) which borders industrial properties.
3. Percentage-wise, Frank Keasler Blvd truck traffic, 1.1% of total traffic, is higher than along Cedar Ridge Rd (Arterial), 0.3% of total traffic.

As a result of the traffic study, Staff recommended establishing a no-through-truck zone along Frank Keasler Blvd between N. Cedar Ridge Rd and N. Duncanville Rd. Council requested Staff bring the amended ordinance to them for consideration at the next available Council meeting.

POLICY EXPLANATION:
Council approval is required to amend City Ordinances.

FUNDING SOURCE:
N/A

Contract Log #:
N/A

RECOMMENDATION:

Staff recommends approval of an ordinance amending Section 19-163 of the City Ordinance to add Frank Keasler Blvd to the list of no-through-truck zones.

ATTACHMENTS:
Attachment 1 - Ordinance No. 2398 - Amend Chap 19 Traffic

ORDINANCE NO. 2398

AN ORDINANCE OF THE CITY OF DUNCANVILLE, TEXAS, AMENDING THE CODE OF ORDINANCES BY AMENDING CHAPTER 19, "TRAFFIC", ARTICLE ' IX 'TRUCK ROUTES', BY AMENDING SECTION 19-163 'NO-THROUGH-TRUCK ZONE; EXCEPTIONS; LOCATIONS DESIGNATED', SUBSECTION (C) BY ADDING FRANK KEASLER AS A NEW STREET; PROVIDING A REPEALING CLAUSE; PROVIDING A SEVERABILITY CLAUSE, PROVIDING A SAVINGS CLAUSE; PROVIDING FOR A PENALTY OF FINE NOT TO EXCEED THE SUM OF FIVE HUNDRED DOLLARS ($500.00); AND PROVIDING FOR AN EFFECTIVE DATE.

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF DUNCANVILLE, TEXAS:

SECTION 1. That the Code of Ordinances of the City of Duncanville, Texas, be and the same is hereby amended by amending Chapter 19, "Traffic", by amending Article IX, "Truck Routes", by amending Section 19-163, "No-through-truck zone; exemptions; locations designated Standing or Parking of Trucks, Trailers and Commercial Vehicles", Subsection (c) by adding new street Frank Keasler, to read as follows:

"CHAPTER 19 – TRAFFIC

ARTICLE I. IN GENERAL . . . . .

. . . . .

ARTICLE IX. TRUCK ROUTES

Sec. 19.160. Definitions

. . . .

Sec. 19.163. No-through-truck zone; exceptions; locations designated

(a) . . . .

. . . . .

(c) The following streets or portions of streets are designated no-through-truck zones:

Street	Extent
(1) Thrush Avenue	Interstate …..
. . . . .	
(27) Frank Kessler Boulevard	From its intersection with N. Duncanville Road westward to its terminus at N. Cedar Ridge Road in its entirety”

SECTION 2. That all provisions of the ordinances of the City of Duncanville in conflict with the provisions of this Ordinance be, and the same are hereby, repealed, and all other provisions of the ordinances of the City of Duncanville not in conflict with the provisions of this Ordinance shall remain in full force and effect.

SECTION 3. That should any sentence, paragraph, subdivision, clause, phrase or section of this Ordinance be adjudged or held to be unconstitutional, illegal or invalid, the same shall not affect the validity of this Ordinance as a whole, or any part or provision thereof other than the part so decided to be invalid, illegal or unconstitutional, and shall not affect the validity of the Code of Ordinances as a whole.

SECTION 4. That an offense committed before the effective date of this Ordinance is governed by prior law and the provisions of the Code of Ordinances, as amended, in effect when the offense was committed and the former law is continued in effect for this purpose.

SECTION 5. That any person, firm or corporation violating any of the provisions or terms of this Ordinance shall be subject to the same penalty as provided for in the Code of Ordinances of the City of Duncanville as heretofore amended and upon conviction shall be punished by a fine not to exceed the sum of Five Hundred Dollars

($500.00) for each offense, and each and every day such violation shall continue shall be deemed and constitute a separate offense.

SECTION 6. That this Ordinance shall take effect immediately from and after its passage and the publication of the caption, as the law and charter in such cases provide.

DULY ORDAINED AND ADOPTED by the City Council of the City of Duncanville, Texas, on the 20th day of April, 2021.

APPROVED:

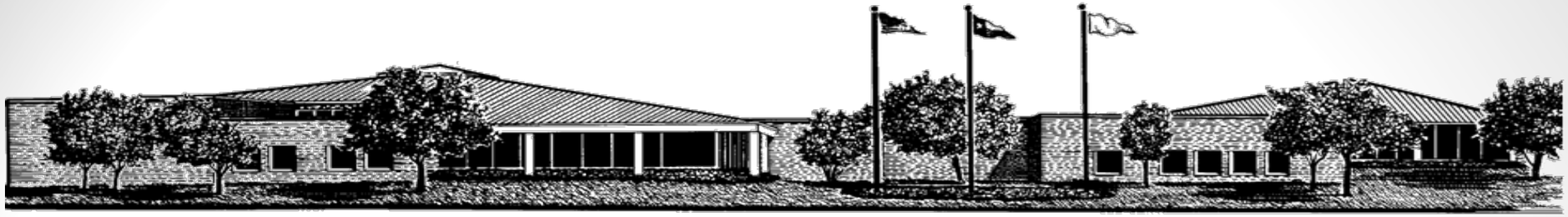
_____
Barry L. Gordon, Mayor.

ATTEST:

_____
Kristin Downs, City Secretary

APPROVED AS TO FORM:

_____
Robert E. Hager, City Attorney

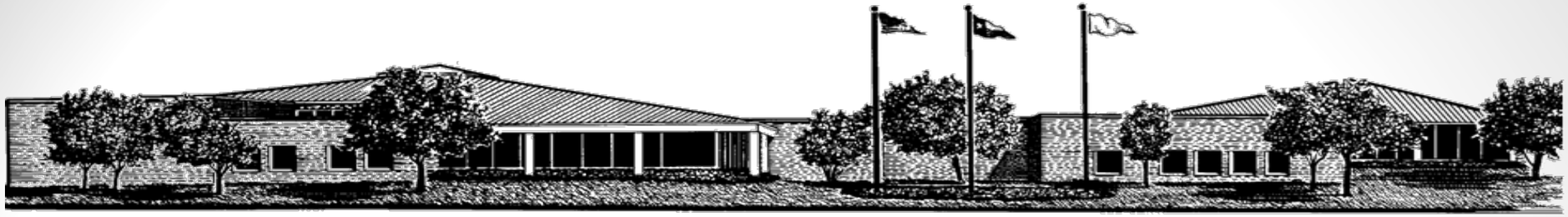


DUNCANVILLE POLICE DEPARTMENT

APRIL 20, 2021

We are building a vibrant, inclusive community, driven by a commitment to democratic principles and service above self

City of Duncanville



City of Duncanville

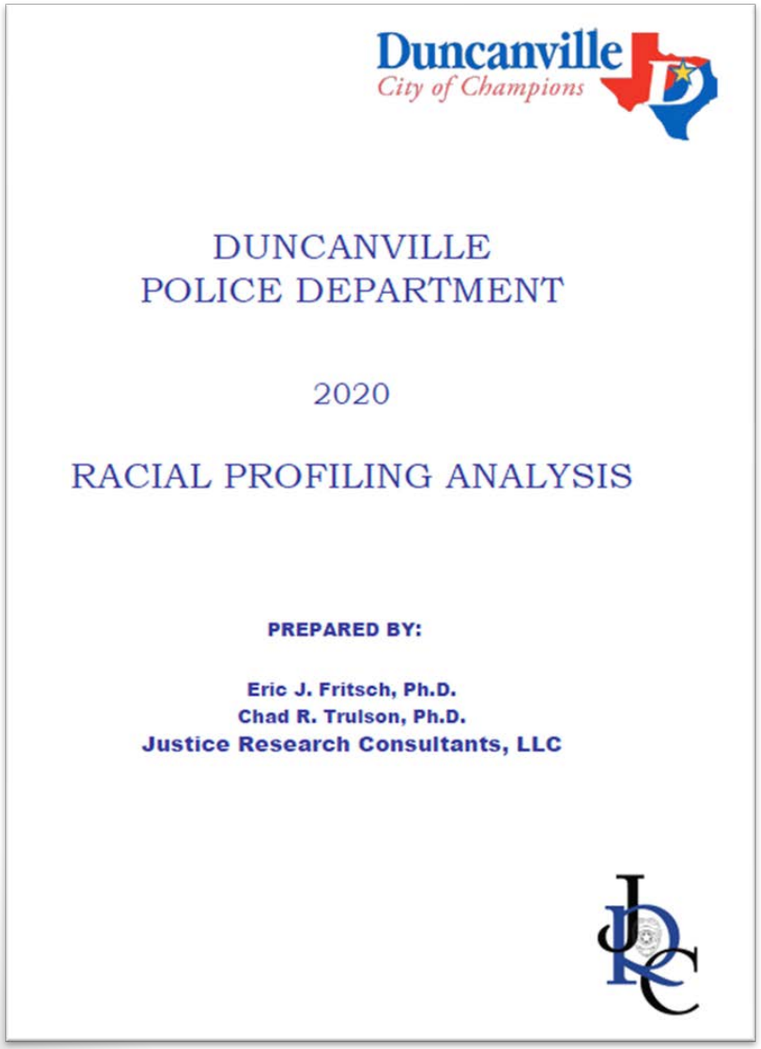
QUARTERLY REPORT
JANUARY – MARCH 2021

APRIL 20, 2021

MARK LIVIGNI, INTERIM CHIEF OF POLICE

We are building a vibrant, inclusive community, driven by a commitment to democratic principles and service above self

2020 Racial Profile Report



- Independent Analysis – Fully compliant with all aspects of the law.
- Full report can be accessed on our web page at https://www.duncanville.com/departments/police/administration/

City of Duncanville

Staffing/Personnel

- Currently have five (5) police recruits attending two separate basic police academies at the North Central Texas Council of Governments.
- Graduation for each are:
  - April 16, 2021
  - June 4, 2021
- Civil Service Entry Exam was given April 3, 2021.
  - Resulted in an active list of thirteen (13) for two (2) open positions as of test date.

Jai Johnson, Anai Figueroa, Jessica Picou

Kortlan Jackson

Esmeralda Pineda

City of Duncanville

Duncanville Police Department's Chaplain

- Mr. Moises Ruiz - Duncanville Police Department's new chaplain.

2020 Duncanville Police Department's Annual Report

Employee Milestone Awards

- **Sergeant Joseph Emmett**
  - 10 Years of service bar
  - 10 Years of perfect attendance bar
  - 5 Year safe driving bar
- **Officer David Rawlins** - 10 Years of service bar
- **Officer Trevor Clark** - 5 Years of service
- **Crime Analyst Stacy Trevino** - 5 Years of service
- **Officer Ben Shipman** - 5 Year safe driving bar
- **Lieutenant Chris McCaleb** - 5 Years of perfect attendance bar

Working together to weather the Snowstorm in the fashion of Champions

City of Duncanville

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Water Station

On February 21, 2021, personnel of the Duncanville Police Department assisted other city employees in distributing water to citizens in need.

City of Duncanville

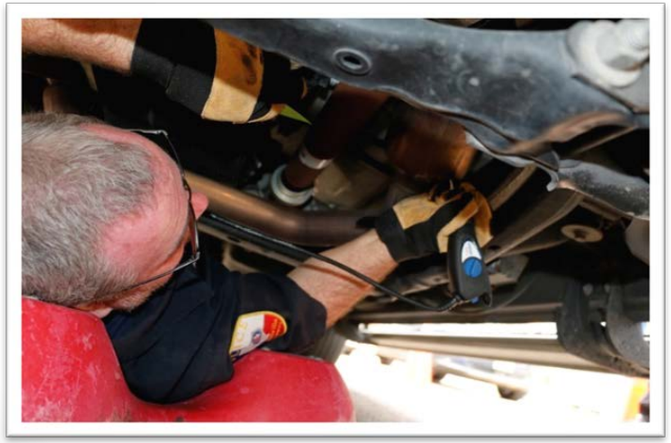
Enhancing the Safety of Citizens

- Duncanville City Council amended Peddlers and Solicitor's Ordinance February 2, 2021 to enhance safety of citizens
  - Newly permitted door-to-door solicitors must wear a brightly-colored vest as shown
  - Still must possess the permit on their person while soliciting
  - May not go door-to-door between the hours of 7pm-9am
- Fifty-four (54) permit holders are grandfathered
  - Are not required to adhere to newly amended ordinance
  - Last such permit will expire August 28, 2021

City of Duncanville

Operation Catalytic Converter Etching

- Combatting rising thefts of catalytic converters on March 27, 2021.
- 98 vehicles were etched during the event.
- Great job by many personnel!
  - Numerous police volunteers and their coordinator, Galen Wilson
  - Crime Prevention Officer Doug Sisk
  - Detective Chad Berger
  - Lieutenant Chris McCaleb



City of Duncanville

Department Activity: January – March 2021

- Number of Use of Force Incidents:
  - 5 – All were found to be lawful and within departmental policy.
- Number of Vehicle Pursuits:
  - 3 – All were determined to be lawful and within departmental policy.
  - 1 – After a brief pursuit was terminated, an administrative review determined the pursuit was not within departmental policy.
- Number of Complaints:
  - 3 – Internal complaints for policy violations, all of which are still under review.

City of Duncanville

Department Activity: January – March 2021

Community Meetings and Partnerships:

January 2021	2 meetings with 63 partnerships
February 2021	2 meetings with 63 partnerships
March 2021	4 meetings with 226 partnerships

City of Duncanville

NIBRS Group A Offenses

F.B.I. chose these crimes on the basis of their seriousness, frequency of occurrence, pervasiveness in all areas of the country and likelihood of being reported.

- Animal Cruelty
- Arson
- Assault Offenses
  - Aggravated Assault
  - Simple Assault
  - Intimidation
- Bribery
- Burglary/Breaking and Entering
- Counterfeiting/Forgery
- Destruction/Damage/Vandalism of Property
- Drug/Narcotic Offenses
  - Drug/Narcotic Violations
  - Drug Equipment Violations
- Embezzlement
- Extortion/Blackmail
- Fraud Offenses
  - False Pretenses/Swindle/Confidence Game
  - Credit Card/Automated Teller Machine Fraud
  - Impersonation
  - Welfare Fraud
  - Wire Fraud
  - Identity Theft
  - Hacking/Computer Invasion
- Gambling Offenses
  - Betting/Wagering
  - Operating/Promoting/Assisting Gambling
  - Gambling Equipment Violations
  - Sports Tampering
- Homicide Offenses
  - Murder and Nonnegligent Manslaughter
  - Negligent Manslaughter
  - Justifiable Homicide (Not a Crime)
- Human Trafficking Offenses
  - Commercial Sex Acts
  - Involuntary Servitude
- Kidnapping/Abduction
- Larceny/Theft Offenses
  - Pocket – picking
  - Purse – snatching
  - Shoplifting
  - Theft From Building
  - Theft From Coin - Operated Machine or Device
  - Theft From Motor Vehicle
  - Theft of Motor Vehicle Parts or Accessories
  - All Other Larceny
- Motor Vehicle Theft
- Pornography/Obscene Material
- Prostitution Offenses
  - Prostitution
  - Assisting or Promoting Prostitution
  - Purchasing Prostitution
- Robbery
- Sex Offenses
  - Rape
  - Sodomy
  - Sexual Assault With An Object
  - Fondling
- Sex Offenses, Nonforcible
  - Incest
  - Statutory Rape
- Stolen Property Offenses
- Weapon Law Violations

City of Duncanville

NIBRS Group A Offenses: January – March 2021

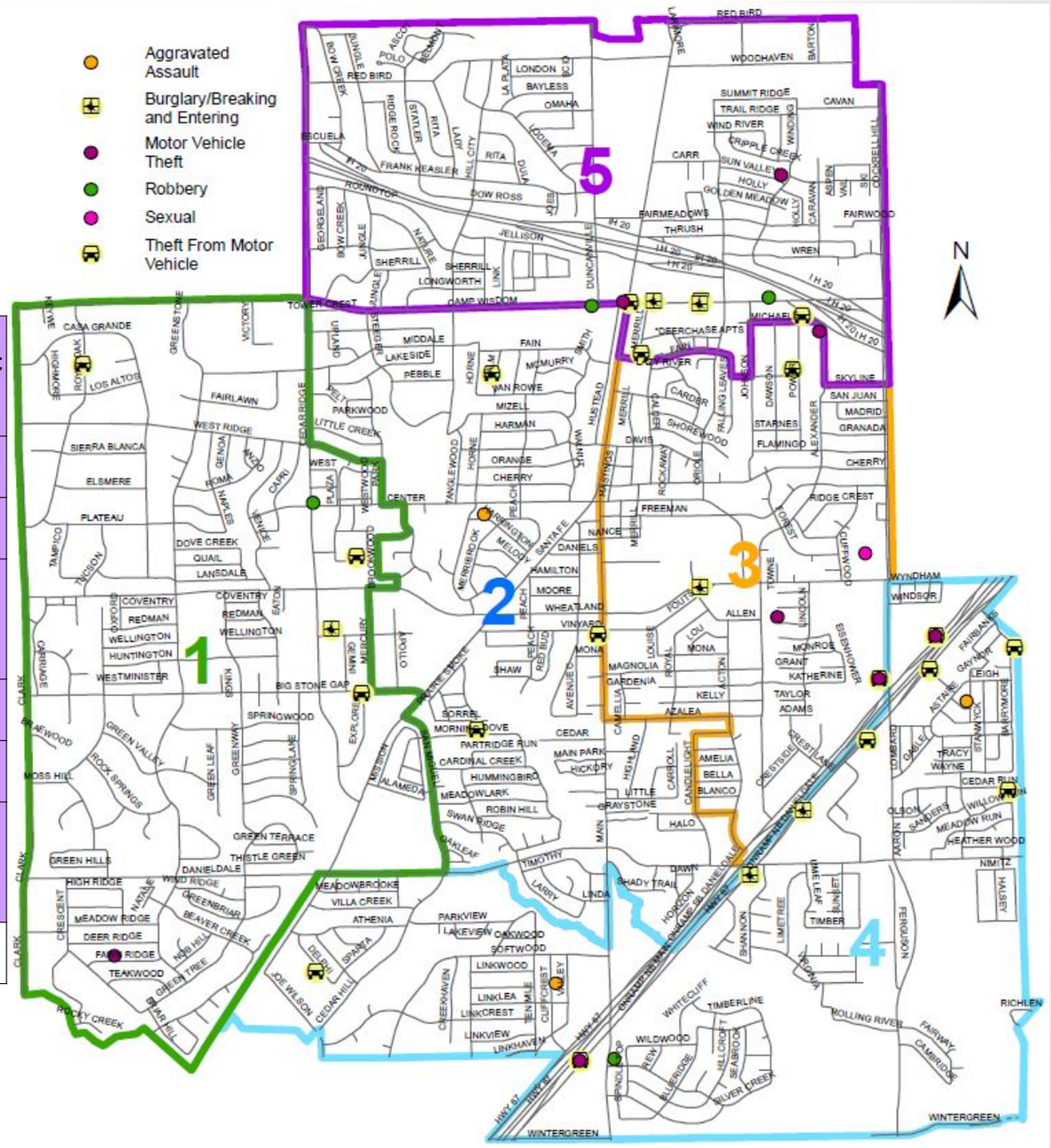
	Occurred	Unfounded	Actual	Cleared
09 - Homicide Offenses	0		0	
100 - Kidnapping/Abduction	0		0	
11 - Sex Offenses	9	2	7	1
36 - Sex Offenses, Non-Forcible	0		0	
120 - Robbery	12		12	4
13A - Aggravated Assault	18		18	14
13B - Simple Assault	72		72	70
13C - Intimidation	3		3	2
200 - Arson	0		0	
210 - Extortion/Blackmail	0		0	
220 - Burglary/Breaking and Entering	33		33	3
23A - Pocket-picking	0		0	
23B - Purse-snatching	0		0	
23C - Shoplifting	3		3	1
23D - Theft From Building	0		0	
23E - Theft From Coin-Operated Machine or Device	0		0	
23F - Theft From Motor Vehicle	49		49	0
23G - Theft from Motor Vehicle Parts/Acccessories	5		5	0
23H - All Other Larceny	103		103	19
240 - Motor Vehicle Theft	47	6	41	9
250 - Counterfeiting/Forgery	1		1	0
26 - Fraud Offenses	32		32	6
270 - Embezzlement	0		0	
280 - Stolen Property Offenses	0		0	
290 - Destruction/Damage/Vandalism of Property	45		45	3
35 - Drug/Narcotic Offenses	56		56	35
370 - Pornography/Obscene Material	0		0	
39 - Gambling Offenses	0		0	
40 - Prostitution Offenses	0		0	
510 - Bribery	0		0	
520 - Weapon Laws Violations	12		12	11
64 - Human Trafficking	0		0	
720 - Animal Cruelty	0		0	
GRAND TOTAL	500	8	492	178

Crime statistics as of 4/08/2021

City of Duncanville

January 2021 Major Crimes

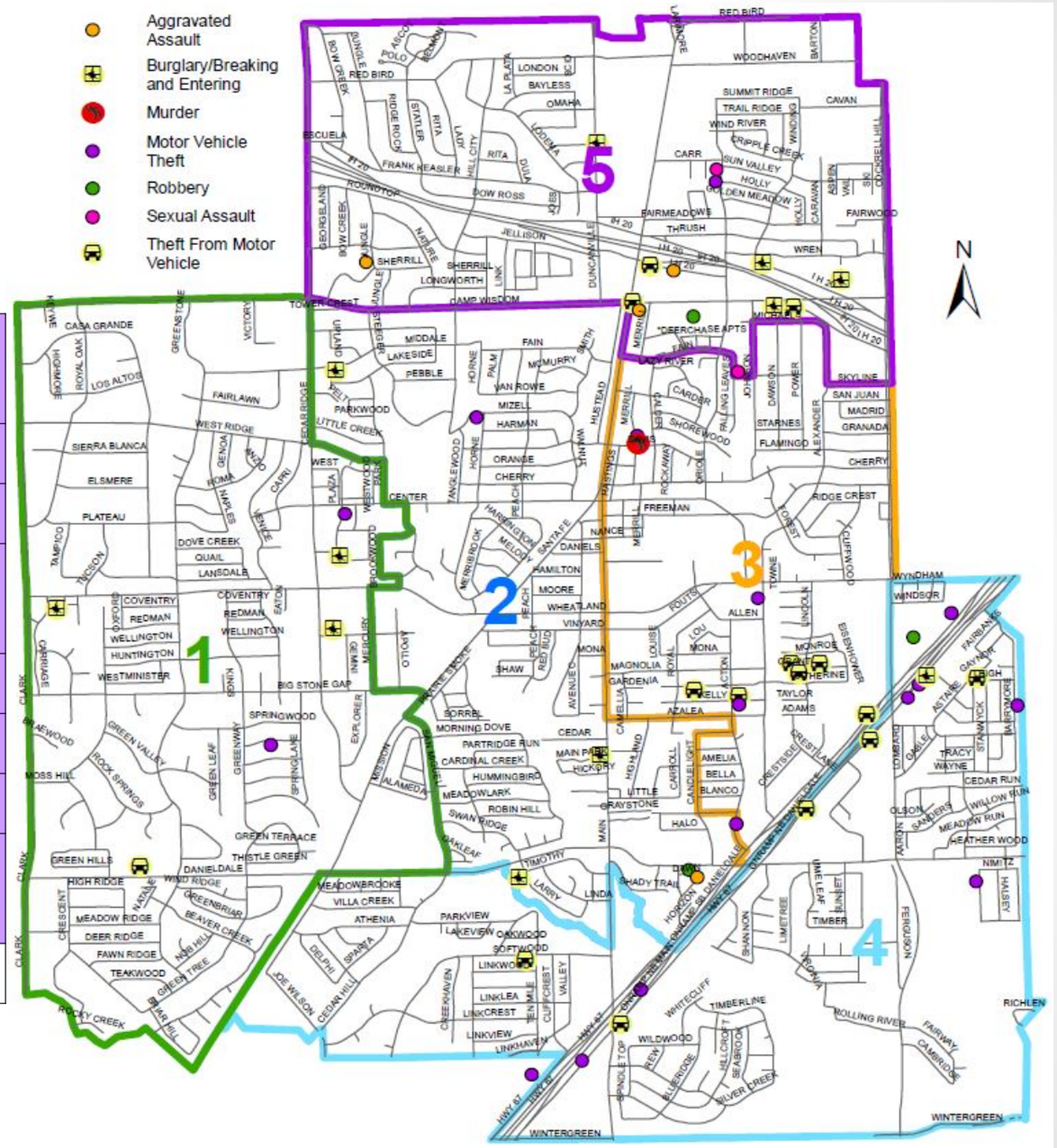
	District 1	District 2	District 3	District 4	District 5
Agg. Assault	0	1	0	2	0
Burglary	1	0	1	2	3
Motor Vehicle Theft	1	0	2	2	3
Robbery	1	0	0	2	2
Sexual Assault	0	0	1	0	0
Theft from Motor Vehicle	3	3	2	10	3
Total	**6**	**4**	**6**	**18**	**11**



City of Duncanville

February 2021 Major Crimes

	District 1	District 2	District 3	District 4	District 5
Agg. Assault	0	1	0	0	3
Burglary	4	3	0	1	4
Motor Vehicle Theft	2	1	4	8	1
Murder	0	0	1	0	0
Robbery	0	1	0	1	1
Sexual Assault	0	0	0	0	2
Theft from Motor Vehicle	2	0	7	5	3
Total	**8**	**6**	**12**	**15**	**14**



City of Duncanville

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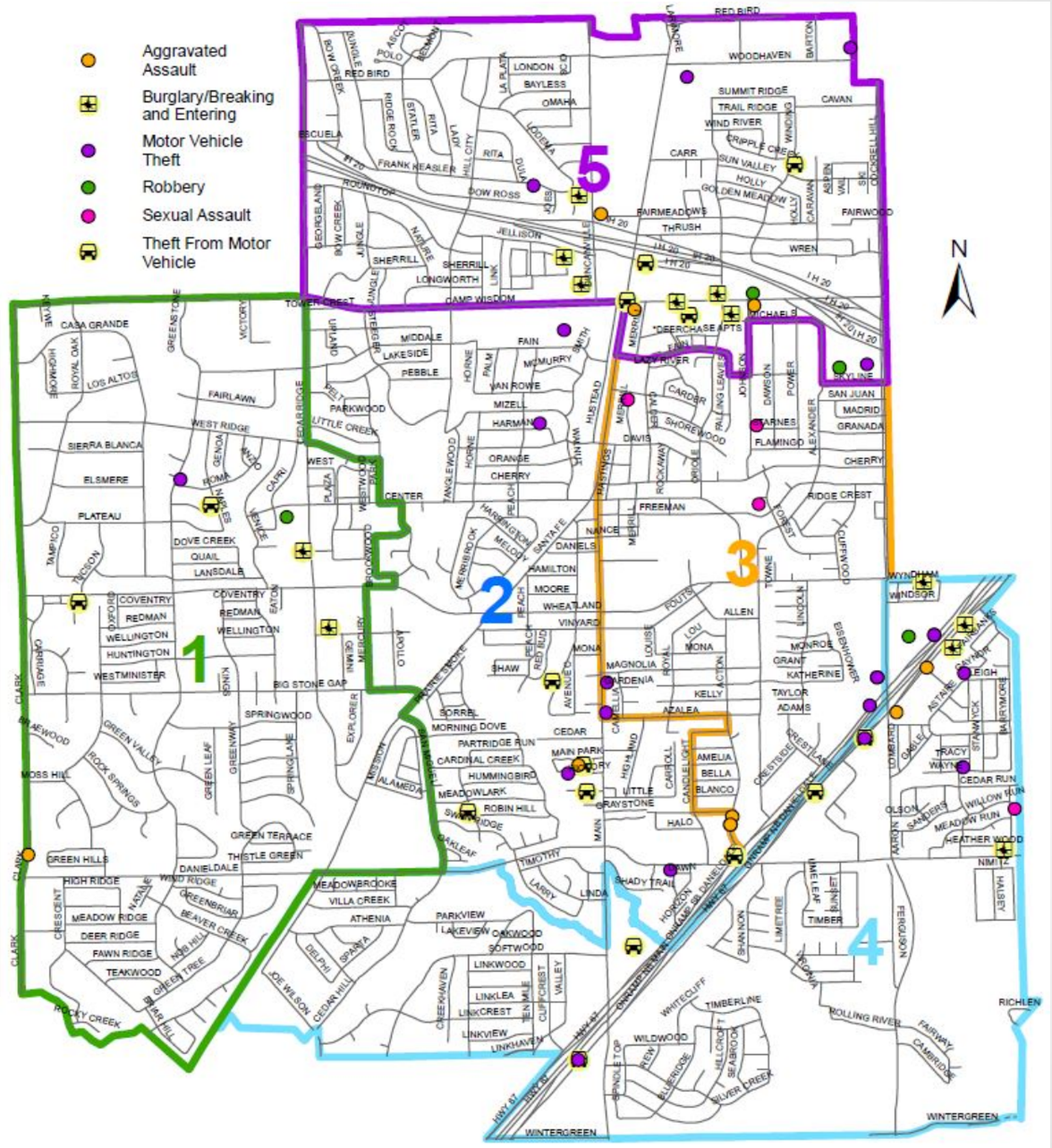
March 2021 Major Crimes

	District 1	District 2	District 3	District 4	District 5
Agg. Assault	1	1	3	2	3
Burglary	2	0	0	5	6
Motor Vehicle Theft	1	4	5	7	6
Robbery	1	0	0	1	2
Sexual Assault	0	0	3	1	0
Theft from Motor Vehicle	2	5	0	4	5
Total	**7**	**10**	**11**	**20**	**22**



City of Duncanville

Questions?